


QE
147
.N8
E266
no.44

DUKE
UNIVERSITY



LIBRARY



Digitized by the Internet Archive
in 2016 with funding from
Duke University Libraries

NORTH CAROLINA GEOLOGICAL AND ECONOMIC SURVEY

JOSEPH HYDE PRATT, State Geologist

ECONOMIC PAPER No. 44

HIGHWAY WORK IN NORTH CAROLINA

DURING THE CALENDAR YEAR ENDING

DECEMBER 31, 1914

A STATISTICAL REPORT

COMPILED BY

JOSEPH HYDE PRATT, State Geologist

AND

MISS H. M. BERRY, Secretary



5-4877

RALEIGH
EDWARDS & BROUGHTON PRINTING CO.
STATE PRINTERS
1917

GEOLOGICAL BOARD

GOVERNOR LOCKE CRAIG, <i>ex officio Chairman</i>	Raleigh
FRANK R. HEWITT.....	Asheville
HUGH MACRAE	Wilmington
HENRY E. FRIES.....	Winston-Salem
JOHN SPRUNT HILL.....	Durham

JOSEPH HYDE PRATT, <i>State Geologist</i>	Chapel Hill
---	-------------

5-2-3

7873

785-44

LETTER OF TRANSMITTAL

CHAPEL HILL, N. C., May 1, 1916.

*To His Excellency, HON. LOCKE CRAIG,
Governor of North Carolina.*

SIR:—The North Carolina Geological and Economic Survey, in coöperation with the United States Office of Public Roads, has collected data for the calendar year 1914 in regard to road work in the State, including mileage, finances, administration, maintenance, uses of convict and free labor, etc. The results of these statistics throw considerable light on the road situation in the State, and it is believed that their publication from year to year will help the people of the State to realize, more than anything else, the inefficiency of present methods of road work and administration, and the necessity for the inauguration of more effective and scientific methods. I am, therefore, submitting these statistics in the form of a report, to be published as Economic Paper No. 44 of the publications of the North Carolina Geological and Economic Survey.

Yours respectfully,

JOSEPH HYDE PRATT,
State Geologist.

HIGHWAY WORK IN NORTH CAROLINA

DURING THE CALENDAR YEAR ENDING DECEMBER 31, 1914

COMPILED BY

JOSEPH HYDE PRATT, STATE GEOLOGIST, AND MISS H. M. BERRY, SECRETARY.

The present report covers an investigation, conducted by the North Carolina Geological and Economic Survey in coöperation with the United States Office of Public Roads, in regard to road mileage, road funds, whether by taxation, bond issue, labor tax, etc.; convict labor on public roads; administrative boards; and systems of maintenance. The statistics given in this report apply to the calendar year ending December 31, 1914, and consist, in the main, of tables, accompanied by a brief explanatory text.

GENERAL STATEMENT REGARDING NORTH CAROLINA AND HER ORGANIZATION AS TO ROAD ADMINISTRATION.

North Carolina has an area of 52,286 square miles, which includes a land area of 48,666 square miles and a water area of 3,620 square miles. Its extreme length from east to west is 503 1-4 miles, and extreme width from north to south is 187 1-2 miles. It is bounded on the north by the State of Virginia, on the east by the Atlantic Ocean, on the south by the States of South Carolina and Georgia, and on the west by the State of Tennessee. It has one hundred counties, varying in size from Robeson, with the largest land area, amounting to 870 square miles, to New Hanover, the smallest, with an area of 162 square miles. Extending from the coast westward to the mountains for a distance of over 500 miles, it includes within its boundaries every variation in topography, from the lowlands of the coastal plain region and the higher region of the piedmont plateau to the steep mountain regions of Western North Carolina. Similar variations are to be found in its climate and geological formations.

All these diverse conditions make the highway problems of the various counties of the State exceedingly complex, and each section has its own problems with regard to location, drainage, surfacing materials, and maintenance. Thus, according to the section of the State in which the county is located, it is found advisable to use macadam, gravel, sand-clay, or topsoil as surfacing materials. Nature

has, however, been very generous in supplying rather abundantly suitable materials for making sand-clay* roads, and because North Carolina is essentially a rural State, containing but few large cities, the sand-clay road for the most part meets traffic conditions over a very wide section. The State is exceedingly well watered, and the problem of culvert and bridge construction and repair is a vital one. All the road work in North Carolina is under the direction of local county or township officials. Up to the last two or three years all assessments were made by county commissioners and the accruing funds spent under their direction. Within the past two or three years, however, especially where bonds have been voted for building public roads, special road commissions have been appointed, either for the entire county (when county bonds have been issued) or for townships or road districts, as the case may be; so that during 1914 the road funds of the State were administered by county commissioners, county road commissioners, township road commissioners or trustees, etc.

The modern movement for better roads in North Carolina may be said to have begun in 1879, when the General Assembly passed what is known as the Mecklenburg Road Law. This was proposed as a general State law, but when passed it applied to only three counties—Mecklenburg, Forsyth, and Stokes. It provided for the working of public roads partly by taxation and partly by the old labor system; but even in this moderate form it was ahead of its time, and in 1881 was repealed. Up to the passage of this law all the road work had been done by the free-labor system, which is still in vogue in a number of counties, in some still being the only system in use, and in others supplemented by a road tax or bond issue. This Mecklenburg law, which was reënacted, can be adopted as the road law of any county by a vote of the county commissioners on petition signed by a number of freeholders in the county.

The General Assembly of 1913 passed a great many acts relating to the issuing of road bonds by counties and townships. There was a great lack of uniformity in these bills and wide variation in the method of issuing the bonds, some being authorized by election on a set date; some by election on petition to county commissioners, others to be issued directly by the county commissioners without vote or petition, and still others to be issued in the discretion of the county commissioners. Some of the acts called for special road or highway commissions to take charge of the road work and others placed the road work under the township commissioners and county commissioners.

There was one law of a general nature passed authorizing any township (except in the counties of Rockingham, Madison, Anson, and

*Sand-clay includes gravel and topsoil.

Robeson) to vote upon bonds, not exceeding \$50,000, upon petition to boards of county commissioners. Elections for these bond issues are to be called by said board upon petition of one-fourth of the qualified voters of any township.

STATE ROAD WORK.

Up to the present time no work has been done directly under the State, except such educational work and engineering assistance as could be rendered by the small appropriation of \$5,000 a year allotted to the highway department of the North Carolina Geological and Economic Survey. Certain special work, however, was allotted to this department by the Legislature of 1913, as the supervision of the construction of the Hickory Nut Gap Road (a link of the Charlotte-Asheville Highway), which is being built by State convicts, and similar supervision of a link of the Central Highway in Madison County. State convicts were also allotted to do this work.

SOURCES OF INFORMATION.

The facts given in this report were obtained from chairmen of boards of county commissioners, chairman of road commissions (both county and township), from registers of deeds, clerks of courts, road engineers, road superintendents, and in some cases from private individuals. The county and road commissions were first written to and given an opportunity to fill out the list of questions. A second request was sent with a personal letter. In many instances third, fourth, and fifth requests were mailed to such parties as it was thought could give reliable answers. In a few cases personal visits were made by engineers of the Geological Survey to road officials and the desired information secured.

In compiling the special-tax figures, access was had to the report of the State Auditor, and we were able to compute the amount of special tax from this, thus checking up these returns. This office keeps in touch with the bond issues which are being voted from time to time by different counties and townships, and thus we were able to check this data with the reports sent in.

As to mileage in the counties, these figures were adjusted with figures which had been received in previous years for total mileage, and the figures for improved mileage were checked by considering average cost per mile with available funds.

While all data given may not be absolutely correct, it is believed that it is as nearly correct as can be had from any available sources

of information. None of the counties or townships in which road work is being done keep accurate cost data, and practically none of the counties have had road maps made of them, so that, while the figures given as to mileage cannot be taken as absolutely correct, yet they are close approximations.

TABLE I

Revenue by Counties and Townships from Direct Taxation (Property and Poll), Special Taxes (Auto Tax, Dog Tax, Central Highway Tax), Labor Tax, and Private Subscription.

It will be noted from this table that in some instances there is a tax levied for the entire county for road improvement, in other instances townships have a special levy for road building, while in still other cases there is a county levy supplemented by additional levies in certain townships.

In column 1 is given the rate for county levies per \$100 worth of property.

In column 2 is given the rate of township levies per \$100 worth of property.

In column 3 is given the rate on polls by counties.

In column 4 is given the rate by townships on the poll.

Column 5 gives the amounts obtained from both property and poll taxes in counties and townships.

Column 6 gives the purposes for which these taxes are levied, as for repair and maintenance of dirt roads; construction of new roads; interest and sinking fund on bond issues; bridges, etc.

Column 7 gives the allotment by counties of the State automobile tax. This tax is supposed to be used for the upkeep of roads, but is sometimes diverted from that purpose.

Column 8 specifies certain other sources of revenue, as private subscriptions; dog taxes; value of labor contributions; tax for Central Highway; Federal funds; excess fees of county officers used for roads; United States Department of Agriculture fund; sale of railroad stock; money borrowed by county commissioners for roads; railroad tax; and chain-gang tax.

Column 9 gives the amounts raised from the sources designated in column 8.

Column 10 gives the total amount for road purposes derived from columns 5, 7 and 9.

Column 11 gives by counties and townships the number of days of free labor required from citizens in rural districts.

Column 12 gives the age limits of citizens who are subject to this labor tax.

Column 13 gives by counties and townships the estimated number of men who are subject to this labor tax.

TABLE I. REVENUE FOR ROAD WORK IN NORTH CAROLINA—BY SPECIAL TAXES,

County	Township	Rate on Property		Rate on Poll		Total Amounts Obtained from Property and Poll Taxes	For What Used
		County	Township	County	Township		
Alamance		\$0.16 $\frac{2}{3}$	\$	\$	\$	17,629.98	Const. and repr...
Alexander		0		0			Repair
Alleghany	Ellendale	0	.25	0	.75	*1,000.00	
Anson		25-30		75-90c		19,683.00	Constr.
Ashe							Repair
Avery		.20		0		4,500.00	Repr. dirt roads
Beaufort							Const. and repr.
	Chocowinity						
	Long Acre	0	.10		2.00	8,256.03	
	Richland						
	Washington						
Bertie		.20 $\frac{1}{2}$		0		13,724.78	Bridges and repr. dirt roads
Bladen		.10		.30		6,000.00	Repair
Brunswick		.25				1,000.00	
	Lockwood's Folly						
	Northwest						
	Shallotte		.12		.36	4,500.00	Int. and sink. fund
	Smithfield						
	Town Creek						
Buncombe		.20		0		51,128.76	Const. and repr.
	Black Mountain	.20				1,800.00	
Burke		.20		0		8,759.44	Const. and repr.
	Morganton		.08 $\frac{1}{2}$			2,300.00	Int. and sink. fund
	Silver Creek						
Cabarrus		.30		0		30,280.00	Const. and repr.
Caldwell		0		0			
	Lovelady						
Camden		0					
Carteret		.15		0		5,460.00	Int. and sink. fund const. and repr.
Caswell		.10		0		3,000.00	
Catawba		.20		0		*12,371.00	Repr. and bridges.
	Hickory		.20	0		7,242.65	Int. and sink. fund
	Newton		.30			*4,500.00	Int. and sink. fund
Chatham		.10		0		6,836.76	Repr. dirt road
Cherokee		.10		0		*5,000.00	
	Marble Dist.		.21 $\frac{1}{2}$			*2,000.00	
	Murphy		.55			11,000.00	Int. and sink. fund
	Valley Town		.35		1.05	6,500.00	
Chowan		0					
	First		.07 $\frac{1}{2}$.22 $\frac{1}{2}$		
	Second		.20		.60		
	Third		.20		.60	5,300.00	Repair
	Fourth		.20		.60		
Clay		.10		0		1,109.00	Repair

*Estimated.

GIFTS, LABOR, AND ALL OTHER SOURCES EXCEPT BOND ISSUES DURING 1914.

Amount of Auto Tax	Other Sources		Totals from All Sources	Average Number of Days Worked Per Man	Age Limit	Estimated Number Men Subject to Labor Tax
	How Derived	Amount				
\$ 1,004.00	Priv. sub.....	\$ 400.00	\$ 19,033.98	3 days or \$1.25	21-45	2,000
131.60	-----	-----	131.60	6	18-45	1,500
-----	-----	-----	1,000.00	-----	-----	-----
1.60	Priv. sub.....	500.00	501.60	6 const., 8 repr.	18-50	700
494.40	{ Priv. sub.....	1,000.00 }	23,677.40	6	18-45	2,000
-----	{ Labor, etc.....	2,500.00 }	-----	-----	-----	-----
20.00	-----	-----	20.00	8	18-45	1,000
8.00	-----	-----	4,508.00	-----	-----	0
903.00	-----	-----	903.00	3	18-45	1,200
-----	-----	-----	-----	-----	-----	-----
-----	-----	-----	8,256.03	-----	-----	-----
-----	-----	-----	-----	-----	-----	-----
856.20	-----	-----	14,580.98	4	18-45	3,000
125.60	Priv. sub.....	500.00	6,625.60	-----	-----	0
100.40	-----	-----	1,100.40	6	18-45	1,000
-----	-----	-----	-----	-----	-----	-----
-----	-----	-----	4,500.00	-----	-----	0
-----	-----	-----	-----	-----	-----	-----
3,495.40	Priv. sub.....	5,000.00	59,624.16	4 days or \$3.00	21-45	2,835
-----	-----	-----	1,800.00	-----	-----	0
316.20	-----	-----	9,075.64	6	18-45	1,200
-----	-----	-----	-----	-----	-----	-----
-----	-----	-----	2,300.00	-----	-----	0
1,100.60	{ Labor.....	200.00 }	32,080.60	0	-----	0
-----	{ Priv. sub.....	500.00 }	-----	-----	-----	-----
439.40	{ Labor.....	400.00 }	2,639.40	6	18-45	3,000
-----	{ Priv. sub.....	1,800.00 }	-----	-----	-----	-----
-----	-----	-----	-----	-----	-----	0
60.00	-----	-----	60.00	6	18-45	1,000
127.60	Labor.....	200.00	5,787.60	6	18-45	800
-----	-----	-----	-----	-----	-----	-----
312.80	{ Dog tax.....	1,800.00 }	5,412.80	4	18-45	1,500
-----	{ Priv. sub.....	300.00 }	-----	-----	-----	-----
1,100.40	Priv. sub.....	2,000.00	15,471.40	-----	-----	0
-----	-----	-----	7,242.65	-----	-----	0
-----	-----	-----	*4,500.00	-----	-----	0
-----	-----	-----	-----	-----	-----	-----
284.80	{ Corp. tax.....	1,103.00 }	10,124.56	3	21-45	3,000
-----	{ Dog tax.....	1,100.00 }	-----	-----	-----	-----
-----	{ Priv. sub.....	800.00 }	-----	-----	-----	-----
105.60	Labor.....	500.00	5,605.60	8	21-45	1,400
-----	-----	-----	2,000.00	-----	-----	-----
-----	-----	-----	11,000.00	6	21-45	600
-----	-----	-----	6,500.00	-----	-----	-----
431.80	Priv. sub.....	100.00	531.80	-----	-----	0
-----	-----	-----	-----	-----	-----	-----
-----	-----	-----	5,300.00	-----	-----	0
-----	-----	-----	-----	-----	-----	-----
4.00	-----	-----	1,113.00	4	18-45	300

TABLE I

County	Township	Rate on Property		Rate on Poll		Total Amounts Obtained from Property and Poll Taxes	For What Used
		County	Township	County	Township		
Cleveland.....		\$.25	\$..	\$..	\$..	\$..	
	No. 2.....						
	No. 4.....						
	No. 6.....						
	No. 7.....					*23,000.00	Int., sinking fund and repair.....
	No. 8.....						
	No. 9.....						
Columbus.....		.10		0		11,266.80	Constr. and repr. and brdg. matr..
Craven.....	Levied by Township..	.20		.60		25,344.40	Const. and repr...
Cumberland.....		.25		0		26,000.00	Const. and repr. and bridges.....
Currituck.....		0		0			
Dare.....		0		0			
Davidson.....	Levied by Township..	15-20		45-60		21,880.00	Repr. dirt roads ..
Davie.....		.20		.60		10,059.33	Int. sinking fund and repair.....
Duplin.....		0					Repr. dirt roads..
	Calypso.....						
	Cypress Creek.....						
	Faison.....						
	Island Creek.....		.20			*2,000.00	
	Rose Hill.....						Int. on bonds.....
	Wallace.....						
	Warsaw.....		.20	.60		*1,500.00	Int. on bonds.....
Durham.....		.17		0		47,928.04	Const. and repr. and bridges.....
Edgecombe.....		.25					
	Whitakers R. D.....		.23			19,082.15	Const. and repr...
	Rocky Mount R. D.....		.20	.60		11,119.38	Const. and repr.
Forsyth.....		.28		0		82,728.64	Const. and repr. and bridges.....
Franklin.....		.10				6,482.00	
	Franklinton.....		.35	1.05		6,800.00	
	Louisburg.....		.25	.75		4,500.00	
	Youngsville.....		.30	.90		2,600.00	
Gaston.....		.25		.75		41,250.00	Const. and repr. bridges.....
Gates.....		0		0			Rpr. dirt roads ..
	Holly Grove.....		.20	.60		1,318.88	Int. on bonds.....
Graham.....		.25‡				1,233.00	Repr. dirt roads ..
	Cheoah.....		.30	.90		2,700.00	Repr. dirt roads ..
	Stecoah.....		.30	.90		1,200.00	Repr. dirt roads ..
Granville.....		.30‡				28,405.77	Const. and repr...
Greene.....	By Townships.....	.59				10,661.26	Int. sinking fund and repairs.....
Guilford.....		.23‡				70,000.00	All purposes, including bridges..
Halifax.....	By Townships.....	.25		2.00		32,000.00	Int. sinking fund and repairs.....

*Estimated.

‡For three townships.

‡Sandy Creek Township.

Continued.

Amount of Auto Tax	Other Sources		Totals from All Sources	Average Number of Days Worked Per Man	Age Limit	Estimated Number Men Subject to Labor Tax
	How Derived	Amount				
\$ 852.20		\$	\$ 852.20			0
			23,000.00			0
505.60	{ Spec. tax..... Priv. sub..... Wk. civic week.....	{ 603.00 1,200.00 200.00 }	13,775.40	6 days or \$3.00	21-45	4,000
1,135.00	Tax for Cen. Hwy.	3,100.00	29,579.40	0		0
872.00		0	26,572.00	0	0	0
143.60			143.60	3-6	18-45	1,000
61.60		0	61.60	6	18-45	500
1,337.00			23,217.00	†6	18-45	1,000
223.80	Fed. funds.....	12,425.00	22,708.13	0	0	0
304.40			304.40	6	18-45	3,000
	Priv. sub.....	1,800.00	1,800.00			
			2,000.00			
			1,500.00			
1,622.80	Dog tax.....	572.50	50,123.34	0	0	0
1,680.60			20,762.75	0	0	0
			11,119.38			
2,699.80	{ Priv. sub..... Fed. funds.....	{ 1,550.00 1,412.25 }	88,390.69	0	0	0
725.20	Priv. sub.....	450.00	7,257.20	6	21-49	1,000
			6,800.00			
			4,500.00			
			2,600.00			
1,257.00	Priv. sub.....	1,250.00	43,757.00	0	0	0
127.20	Labor given.....	350.00	477.20	0	0	0
			1,318.88			
			1,233.00	4	18-45	700
			2,700.00			
			1,200.00			
854.00	Dog tax.....	984.50	30,244.27	4	21-45	3,000
444.00			11,105.26	6	18-45	2,000
4,708.00	{ Excess fees coun- ty officers..... Priv. sub.....	{ 14,000.00 1,000.00 }	89,708.00	0	0	0
1,424.60	Priv. sub.....	500.00	33,924.60	0	0	0

TABLE I—

County	Township	Rate on Property		Rate on Poll		Total Amounts Obtained from Property and Poll Taxes	For What Used
		County	Township	County	Township		
Harnett		\$	\$	\$	\$	\$	Int. and Const.
	Hectors Creek						
	Lillington		.20		.60	5,000.00	
	Upper Little River						
Haywood		.12				6,444.00	Genl. purposes
	Waynesville		.33½			7,287.00	
Henderson	By Townships	.20				9,000.00	Int., sink. fund, repairs and brdgs.
Hertford		0					
	Ahoskie		.25		.75	2,636.00	Gen. repr. drt. rds.
	Harrellsville		.25		.75	2,053.00	Gen. repr. drt. rds.
	Maney's Neck		.25		.75	1,821.00	Gen. repr. drt. rds.
	Murfreesboro		.05		.15	378.00	Gen. repr. drt. rds.
	St. Johns		.30		.90	3,117.00	Gen. repr. drt. rds.
	Winton		.25		.75	2,698.00	Gen. repr. drt. rds.
Hoke		.25		.75		7,500.00	Int. and reprs.
Hyde		0					
	Fairfield		.20		.60	696.85	Bridges and repair dirt roads
	Swan Quarter		.20		.60	856.84	
Iredell		.25		.75		36,221.23	Int. sinking fund, reprs. and brgs.
Jackson							
	Cullowhee						
	Dillsboro		10-55		30-1.65	9,118.00	Int. and sinking fund
	Sylva						
Johnston	By Townships	.25				28,874.24	Const. and rpr.
Jones		.20		.60		6,308.79	Repr. dirt roads and grading
Lee		.17½		.60		8,655.00	Int. sinking fund, repr. and brdgs.
Lenoir		.18		0		14,287.72	Const., rprs. and bridges
Lincoln		.20		.60		*12,000.00	Int., sinking fund and repairs
Macon		.34				8,150.48	Repr. dirt roads
	Franklin						
McDowell		.10				1,500.00	Repr. dirt roads
	Marion		.30			5,563.39	Int. and skg. fund
	Nebo		.20			*1,200.00	Int. and skg. fund
	Old Fort		.25			3,500.00	Int. and skg. fund
Madison		.30		0		10,916.70	Int. and skg. fund
Martin							
	Robersonville		.16½		.50	2,600.00	Int. and skg. fund
	Williamston		.50		1.50	7,019.13	Const. and rpr.
Mecklenburg		.30					
	All Townships		.10			130,720.00	30c const., 10c rpr., const. and rprs.
	Berryhill		.12½				
Mitchell		.50		0		11,000.00	Repr. dirt roads and bridges

*Estimated.

†Harp's Road.

‡In three townships.

Continued.

Amount of Auto Tax	Other Sources		Totals from All Sources	Average Number of Days Worked Per Man	Age Limit	Estimated Number Men Subject to Labor Tax
	How Derived	Amount				
\$ 698.40	{ Dog tax..... Priv. sub..... Priv. sub.....	{ \$ *200.00 *300.00 ‡3,500.00	{ \$ 1,198.40 446.00 8,500.00	6	18-45	1,500
243.20	{ Priv. sub..... Spec. tax.....	{ 400.00 4,000.00	{ 11,037.20 7,287.00	6	18-45	3,000
584.40 446.00	Priv. sub.....	1,000.00	10,584.40 446.00 2,636.00 2,053.00 1,821.00 378.00 3,117.00 2,698.00	5 days or \$2.50 6 days or \$3.00	21-45 18-45	600 2,500
469.20 185.60			7,969.20 185.60	0 ‡6	0 18-45	0 500
			696.85 856.84			
1,377.40 16.00	U. S. Dept. Agri- culture Fund ...	3,802.88	41,401.51 16.00	0 4	0 18-45	0 2,000
1,475.00	Priv. sub.....	1,000.00	9,118.00 36,349.24	6 days in 8 twps.	21-45	1,800
170.00	{ Labor sub..... Labor sub.....	{ 300.00 700.00	7,478.79	2 days or \$1.00	21-45	1,000
296.60			8,951.60	0	0	0
1,044.40	{ Priv. sub..... Sale R. R. stock..	{ 1,500.00 37,500.00	54,332.12	0	0	0
449.20 55.60	{ Priv. sub..... Labor.....	{ 200.00 50.00	12,449.20 8,456.08	0 4 days or \$2.00	0 18-45	0 1,500
105.20			1,605.20 5,563.39	6 4	18-45 18-45	1,000 600
	Priv. sub.....	62.00	1,262.00 3,500.00	5 5	21-45 21-45	500 250
6.00 812.60	Fed. Fund.....	10,000.00	10,922.70 812.60 2,600.00	6 days or \$5.00 6	18-45 21-45	1,500 1,700
4,699.40	Spec. tax.....	234.90	7,254.03 135,419.40	4	21-45	2,000
				2	21-45	
0			11,000.00	4	21-45	1,100

TABLE I—

County	Township	Rate on Property		Rate on Poll		Total Amounts Obtained from Property and Poll Taxes	For What Used
		County	Township	County	Township		
Montgomery		\$.10	\$.	\$.	\$.	\$ 12,624.73	Const. and rpr...
Moore	Uwharrie		.30			4,303.16	Const. and rpr...
	Bensalem						
	Carthage						
	Deep River						
	Greenwood		.25		.75	*19,000.00	Const. and rpr...
	McNeills						
	Mineral Springs						
	Sand Hills						
Nash	Road Districts						Int. and skg. fund
	Baileys		.30		.90		
	Castalia		.30		0		
	Coopers Creek		.30		0		
	Dry Wells		.30		0		
	Ferrells		.30		.90		
	Griffin		.30		0	*40,000.00	
	Jacksons		.30		0		
	Mannings		.30		.90		
	Red Oaks		.30		0		
	Rocky Mount		.20		.60		
	South Whitakers		.30		0		
New Hanover		0		0		*75,000.00	
Northampton		.20					Const. and rpr...
	Rich Square			1.50		16,308.20	Int. and skg. fund
Onslow		0					Repr. dirt road and bridge
	Jacksonville		.20		.60	3,638.20	
Orange		.35		0		18,780.00	Int. sinking fund and repr...
Pamlico		.20		0		3,579.00	Repr. road and bridges
Pasquotank		.13		0		9,720.27	Rpr. roads and bridges
Pender		0		0			Repr. dirt roads bridges
	Rocky Point		.20		.60	1,200.00	Repr. dirt road
Perquimans		.35		1.05		13,351.41	Repr. dirt road
Person		.25		0		11,613.00	Repr. dirt road
Pitt		.15		.45		15,000.00	Brdgs. and general road work
	Greenville		.30		0	3,500.00	Int. sinking fund and repair
Polk		.52		0		10,010.00	Brdgs. int. sinkg. fund and rpr...
Randolph		.08½		0		6,500.00	Bridges, const., repair
Richmond		.33½		1.00		29,333.00	Const. and rprs...
Robeson		.21		0		36,521.18	Rpr. dirt roads
Rockingham		.24		0		28,000.00	Const. and rpr...
Rowan		.35		1.05		51,256.00	Const., rpr., and bridges
Rutherford		.15		2.00		16,050.81	Int. sinking fund, const. and rpr...

*Estimated.

Continued.

Amount of Auto Tax	Other Sources		Totals from All Sources	Average Number of Days Worked Per Man	Age Limit	Estimated Number Men Subject to Labor Tax
	How Derived	Amount				
\$ 482.00	{ Labor..... Priv. sub.....	{ \$1,000.00 4,200.00 }	\$18,306.73	4 days or \$4.00	18-45	2,000
1,144.20			4,303.16			
			1,144.20	0	0	0
	Priv. sub.....	500.00				
	Priv. sub.....	200.00	21,700.00			
	Priv. sub.....	2,000.00				
1,452.60			1,452.60			
			40,000.00			
2,449.60			77,449.60	0	0	0
532.60			532.60	3	21-45	2,700
			16,308.20			
162.00	{ Labor..... Priv. Sub.....	{ 500.00 250.00 }	912.00	4	18-45	1,200
			3,638.20			
441.20	{ Priv. sub..... Dog tax.....	{ 250.00 700.00 }	20,171.20	0	0	0
80.00	{ Labor..... Spec. Tax.....	{ 50.00 175.00 }	3,884.00	4	21-50	1,360
699.80			10,420.07	0	0	0
182.00	Labor.....	6,000.00	6,182.00	8	18-45	1,400
			1,200.00			
238.00			13,589.41	0	0	0
502.40	Labor.....	400.00	12,515.40	0	0	0
2,033.40	Priv. sub.....	500.00	17,533.40	5	18-45	2,000
	Priv. sub.....	3,500.00	7,000.00			
90.00			10,100.00	4	21-45	1,000
749.80	{ Borrowed by Co. Priv. sub.....	{ 26,000.00 30,000.00 }	63,249.80	4	18-45	3,600
1,169.40	{ Labor..... Priv. sub.....	{ 1,000.00 500.00 }	32,002.40	0	0	0
1,437.80			37,958.98	4 days or \$2.00	21-50	7,360
1,033.60			29,053.60	2 days or \$1.00	21-45	2,960
1,986.40	Labor and haul- ing.....	1,500.00	54,742.40	0	0	0
703.20	Priv. sub.....	200.00	16,954.01	0	0	0

TABLE I—

County	Township	Rate on Property		Rate on Poll		Total Amounts Obtained from Property and Poll Taxes	For What Used
		County	Township	County	Township		
Sampson		\$.12	\$.00	\$ 0	\$.00	\$ 10,000.00	Int. on bonds and bridges
Scotland		.20		0		6,993.00	Rpr. dirt road
	Laurel Hill		.33 $\frac{1}{3}$		0	*1,500.00	Int. sinking fund and repair
	Spring Hill		.50 $\frac{1}{2}$		0	*2,500.00	Int. sinking fund and repair
	Stewartsville		.30		0	*8,500.00	Int. sinking fund and repair
	Williamson		.45		0	*4,500.00	Int. sinking fund and repairs
Stanly		.10		0		5,631.00	Bridges, grading and repair
	N. and S. Albemarle		.25		.75	7,450.00	Grading and rprs.
Stokes							
	Danbury		.40		1.20		
	Meadows		.30		1.05	*20,000.00	Int. sinking fund and repair
	Sauratown		.40		1.20		
Surry		0					Int. sinking fund
	Mount Airy		.20		.60	6,600.00	Repr. dirt road
Swain		.10		0		2,784.70	Const. and rpr.
Transylvania	By Townships	0	15-25c	.45		6,073.40	
Tyrrell		0					Repr. dirt road
	Scuppernon		.15			367.00	Constr. and rpr.
Union		.25				11,066.00	Constr. and rpr.
	Monroe		.14		.75	10,387.55	
Vance		.17		.51		16,661.55	Int. sinking fund and repair
Wake		.25				70,749.41	Repr. and const., gen. road work and bridges
	Cary						
	Cedar Fork						
	Holly Springs						
	Middle Creek		†.10			3,812.66	Rpr. and const.
	Panther Branch						
Warren		.25				8,685.00	Repr. and brdgs.
	Warrenton		.25		.75	3,750.00	Int. and snk. fund
Washington		.20		.60		10,000.00	Constr. and rpr.
Watauga		.21 $\frac{2}{3}$				5,550.30	Constr. and rpr.
Wayne	By townships		.10		.30	13,757.00	Rpr. dirt roads
	Goldsboro		.20		.60	9,000.00	Constr. and rpr.
Wilkes		.10		0		6,292.00	Rpr. dirt roads
Wilson		.25		.75		32,284.00	Repr., constr. and bridges
	Toisnot		.30		.90	*5,000.00	Rpr., constr. and bridges
Yadkin				.40		5,135.20	Repair
Yancey		.15				2,811.00	Repair
Totals						\$1,782,193.15	

*Estimated.

†Extra.

Continued.

Amount of Auto Tax	Other Sources		Totals from All Sources	Average Number of Days Worked Per Man	Age Limit	Estimated Number Men Subject to Labor Tax
	How Derived	Amount				
\$ 493.60	{ Dog tax.....	\$ 2,500.00 }	\$ 14,493.60	6	18-45	3,000
1,100.80	{ Priv. sub.....	1,500.00 }	8,093.80	0	0	0
-----	-----	-----	*1,500.00	-----	-----	-----
-----	-----	-----	*2,500.00	-----	-----	-----
-----	-----	-----	*8,500.00	-----	-----	-----
-----	-----	-----	*4,500.00	-----	-----	-----
702.60	-----	-----	6,333.60	4	21-45	1,060
-----	-----	-----	7,450.00	-----	-----	-----
216.80	-----	-----	216.80	6	18-45	2,000
-----	-----	-----	20,200.00	-----	-----	-----
-----	R. R. tax.....	200.00	-----	-----	-----	-----
526.00	Priv. sub.....	600.00	1,126.00	6	18-45	2,000
-----	-----	-----	6,600.00	-----	-----	-----
20.00	-----	-----	2,804.70	4	18-45	1,500
216.60	Chain-gang tax	-----	-----	-----	-----	-----
-----	10 cents.....	2,536.70	8,826.70	4 days or \$4.00	18-45	1,500
128.40	-----	-----	128.40	6	21-45	1,500
-----	Priv. sub.....	17.00	384.00	-----	-----	-----
612.20	Priv. sub.....	200.00	11,878.20	6	18-45	3,500
-----	-----	-----	10,387.55	-----	-----	-----
1,044.00	Priv. sub.....	600.00	18,305.55	0	0	0
-----	-----	-----	-----	-----	-----	-----
3,519.40	Dog tax.....	3,643.00	77,911.81	0	0	0
-----	-----	-----	3,812.66	-----	-----	-----
619.60	-----	-----	9,304.60	0	0	0
-----	-----	-----	3,750.00	-----	-----	-----
398.40	-----	-----	10,398.40	6 days or \$2.00	21-45	500
5.60	-----	-----	5,601.90	4 N. R., 8 O. R.	18-45	1,500
1,542.00	-----	-----	15,299.00	6	18-45	2,800
-----	Cent. Hway. tax	500.00	9,500.00	-----	-----	-----
149.40	{ Labor.....	3,000.00 }	9,641.40	10	18-45	3,000
-----	{ Priv. sub.....	200.00 }	-----	-----	-----	-----
1,590.40	-----	-----	33,874.40	0	0	0
-----	-----	-----	*5,000.00	-----	-----	-----
107.60	-----	-----	5,242.80	6	18-45	1,500
8.00	-----	-----	2,819.00	6	18-45	3,000
-----	-----	-----	-----	-----	-----	-----
\$76,173.40	-----	\$221,271.73	\$2,105,238.28	-----	-----	121,225

A review of this table shows that seventy-six counties have levied a special tax for road work, the tax being levied for the whole county. The greater proportion of this was spent, in connection with the labor tax, in the repair of the dirt roads of the counties. As a rule, this money is not spent under the direction of a competent road engineer or superintendent, but is apportioned among the townships and used to employ people, unskilled in road building, who live along the road, to work at such times as their crops are not needing them. Thirty-seven counties have from one to twelve townships levying special road tax. There were seventeen counties which had a county road tax, supplemented by special township taxes. Twenty counties had a poll tax for roads and forty-six townships in twenty-eight counties reported a similar tax. Twelve counties reported other special taxes used for road work, such as dog tax, railroad tax, Central Highway tax, chain-gang tax, etc., aggregating \$37,717.70 in 1914; \$76,173.40 from the State automobile tax was reported to have been returned to the counties to be used on the roads. During 1914, \$92,279 were used in forty-eight counties from private subscriptions of money, labor, and teams. One county sold railroad stock to the amount of \$37,500, which was spent on the public roads during 1914, and three counties were aided by the expenditure of Federal funds. This makes a total of \$2,105,238.28 which was reported to have been spent on the public roads during 1914 from taxes of various kinds, private subscriptions, Federal funds, etc. Of this amount, it was reported that \$312,300 was spent for interest and sinking funds on bond issues; and it was estimated that \$674,577.28 was used for maintenance or upkeep of the public roads, \$125,000 for construction and repair of bridges, and \$316,628 for the construction of new roads.

In addition to the above taxes, sixty-seven counties have a labor tax, and these reported during 1914 an aggregate of 121,225 men subject to this tax who worked on an average 5.17 days each during the year, making a total of 676,733 1/4 days of labor put on the roads in these counties during 1914. Valuing this labor tax at \$1 per day, this makes an additional \$676,733.25 spent on the roads during 1914.

TABLE II

County and Township Expenditures for Roads by Bond Issues

This table gives revenue from bond issues. These bonds are issued either as county bonds or township bonds, and frequently county bonds are supplemented by special bond issues in certain of its townships.

Column 1 gives the total amount of bonds by counties and townships issued to January 1, 1913.

Column 2 gives date of sale of these bonds.

Column 3 gives amount of bonds voted during 1913.

Column 4 gives amount of bonds sold during 1913.

Column 5 gives amount of bonds voted during 1914.

Column 6 gives amount of bonds sold during 1914.

Column 7 gives total amount of bonds issued to January 1, 1915.

TABLE II. REVENUE BY BOND ISSUES.

County	Township or District	Bonds Issued to January 1, 1913	Date of Sale	Bonds Voted During 1913	Bonds Sold During 1913	Bonds Voted During 1914	Bonds Sold During 1914	Total Amount of Bonds Issued to January 1, 1915
Alamance—		\$ 200,000.00	1908					\$ 200,000.00
Alexander—								
Alleghany—	Township	50,000						50,000
Anson—	Wadesboro.	50,000	1912					50,000
Ashe—								
Beaufort—	Horse Creek			5,800	5,800			5,800
Bertie—		20,000	1911	50,000	25,000		25,000	50,000
Bladen—	Township	5,000	1907					5,000
	Brown Marsh.							
	Carver's Creek	10,000	1908	10,000	10,000	5-1-'14	10,000	10,000
Brunswick—								20,000
	Lockwood's Folly	10,000	1911					10,000
	Northwest		Jan. 1915 confd.			15,000	15,000	15,000
	Shallotte	10,000	1908					10,000
	Smithville			30,000		10,000	10,000	40,000
	Town Creek	15,000	1911			10,000	10,000	25,000
		275,000		50,000	50,000	75,000	75,000	400,000
Puncombe—	Black Mountain	20,000	1907					20,000
Burke—								
	Morganton.			50,000	20,000		15,000	50,000
Cabarrus—		105,000		50,000	50,000			*155,000
Caldwell—								
Carteret—	Lovelady					25,000		25,000
	Morehead			10,000			10,000	10,000
	Newport			3,000	3,000	5,000	5,000	8,000

Jackson—	Cullowhee.....			30,000		15,000	30,000
	Dillsboro.....			15,000		15,000	15,000
	Sylva.....			30,000		30,000	30,000
Johnston—	Boula.....					40,000	40,000
	Ingram.....					40,000	40,000
	Meadows.....					50,000	50,000
Lee.....	Sanford.....	100,000	1912				100,000
		15,000					15,000
Lincoln—				200,000		200,000	200,000
McDowell—	Marion.....			50,000		50,000	50,000
	Neco.....			10,000		10,000	10,000
	Old Fort.....			20,000		20,000	20,000
Macon—	Franklin.....			90,000		90,000	90,000
				300,000		150,000	300,000
Madison.....	Mars Hill.....	20,000					20,000
Martin—	Robersonville.....					15,000	15,000
	Williamston.....	20,000		10,000		10,000	40,000
Mecklenburg—		300,000					300,000
Mitchell—	Grassy Creek.....					30,000	30,000
Moore—	Carthage.....	12,000		20,000		20,000	32,000
	Deep River.....			50,000			50,000
	Greenwood.....			12,500			12,500
	McNeill.....	10,000					10,000
	Mineral Spring.....			7,000			7,000
	Sand Hill.....	10,000		10,000			20,000
Nash—	Rocky Mount, R. D.	70,000	1907 and 1912				70,000
	N. Whitakers Twp.	50,000					50,000
McDowell—	Cooper's Creek, R. D.			10,000		10,000	10,000
	Dry Wells, R. D.	20,000					20,000
	Griffin, R. D.	10,000					10,000
	Mannings, R. D.			50,000		50,000	50,000
	S. Whitakers, R. D.	10,000					10,000

	1909 and 1911				
Scotland—	Laurel Hill.....	30,000			
	Spring Hill.....	20,000			
	Stewartsville.....	50,000			
	Williamson.....	30,000			
Stokes—	Danbury.....		15,000		15,000
	Meadows.....		40,000		40,000
	Sauratown.....		50,000		50,000
Surry—	Mount Airy.....	5,000	80,000	20,000	20,000
Vance—			200,000		200,000
Warren—	Warrenton.....			50,000	50,000
Wayne—	Brogden.....		40,000		40,000
	Goldsboro.....		100,000		100,000
	Mount Olive.....			30,000	30,000
Wilson—	Wilson.....	100,000			
Yancey—			150,000		150,000
Totals.....		3,798,000	4,118,300	2,338,800	1,065,500
					2,345,000
					8,961,800

*Partly for bridges.

A review of this table shows that up to January 1, 1915, 24 counties and 120 townships had issued or voted bonds amounting to \$8,961,800; that of these, 3 counties and 36 townships voted bonds during 1914, amounting to \$1,065,500. In 1913 there were \$2,338,800 in bonds sold, and during 1914 \$2,345,000 worth of bonds were sold by 7 counties and 55 townships.

TABLE III

Classified Road Mileage.

This table gives road mileage by counties.

Column 1 gives, by counties, the total number of miles of public roads in the State. These figures are only approximately correct.

Column 2 gives by counties the total number of miles of macadam roads in the State.

Column 3 gives the number of miles of macadam roads constructed in the various counties during 1914.

Column 4 gives, by counties, the total number of miles of sand-clay or topsoil roads in the State.

Column 5 gives, by counties, the number of miles of sand-clay or topsoil roads built during 1914.

Column 6 gives, by counties, the total number of miles of gravel roads in the State.

Column 7 gives, by counties, the number of miles of gravel road built during 1914.

Column 8 gives, by counties, the total number of miles of specially surfaced road (including bituminous macadam, asphalt macadam, Tarvia, and concrete roads) in the State.

Column 9 gives the number of miles of specially surfaced road built during 1914.

Column 10 gives the kinds of surfacing material used in columns 8 and 9.

Column 11 gives, by counties, the total number of miles of road graded and shaped but not surfaced.

Column 12 gives the number of miles of road graded but not surfaced during 1914.

Column 13 gives, by counties, the number of miles of unimproved dirt road.

TABLE III. CLASSIFIED ROAD MILEAGE IN NORTH CAROLINA DURING 1914.

County	Number Miles Public Road	Total Number Miles Macadam Road	Number Miles Macadam Built 1914	Total Number Miles Sand- clay and Topsoil	Number Miles of Sand-clay and Topsoil Built 1914	Total Number of Miles of Gravel	Number Miles Gravel Built 1914	Total Number Miles of Spe- cially Surfaced Roads	Number of Spe- cially Surfaced Miles of Road Built 1914	Kind of Specialty Road	Total Number Miles Road Graded but Not Surfaced	Number Miles Road Graded but Not Sur- faced in 1914	Number Miles Unimproved Dirt Road
Alamance	600	50		8							8	5	734
Alexander	200												200
Alleghany*	300										20		280
Anson*	*500	15		32	19	36	15				13	13	404
Ashie	500												500
Avery	300												300
Beaufort	400			4	2	1							395
Bertie	800			20	5						200		580
Bladen	200			6	3						20	20	174
Brunswick*	*400			*48	*20						20	20	332
Buncombe	700	75		48	4			6		Asphalt Mac- adam	378	27.5	199
Burke	300			10	6						25		259
Cabarrus*	600	16		45	20						50	5	489
Caldwell	500	3		6	5						35	10	456
Camden	200												200
Carteret	200			20	10						10	7	170
Caswell	400	1.5											398.5
Catawba	450			100	25						20	10	330
Chatham	600										4	4	596
Cherokee	400	13	5	32	5	2	2				35		318
Chowan	185												185
Clay	135												135
Cleveland	800			80	30	25					15		680
Columbus	1,150			35	25	2					250	125	863
Craven	930			4							35	15	891
Cumberland	600			105	35						175		320
Currituck	100			3									97
Dare	70												70

*Estimated

[illegible]

TABLE III—Continued.

County	Number Miles Public Road	Total Number Miles Macadam Road	Number Miles Macadam Built 1914	Total Number Miles Sand- clay and Topsoil	Number Miles of Sand-clay and Topsoil Built 1914	Total Number of Miles of Gravel	Number Miles Gravel Built 1914	Total Number Miles of Special- ly Surfaced Road	Number of Spe- cially Surfaced Road Built 1914	Kind of Specially Surfaced Road	Total Number Miles Road Graded but Not Surfaced	Number Miles Road Graded but Not Sur- faced in 1914	Number Miles Unimproved Dirt Road
Wayne.....	*1,000	—	—	*200	*50	*10	*5	—	—	—	*300	*20	*490
Wilkes.....	1,000	1	—	—	—	—	—	—	—	—	150	50	849
Wilson.....	800	24	—	35	9	1	—	—	—	—	40	—	700
Yadkin.....	300	—	—	—	—	—	—	—	—	—	—	—	300
Yancey.....	80	—	—	3	3	—	—	—	—	—	17	17	60
Totals.....	50,758	1,105	48 $\frac{1}{2}$	4,363.5	1,619.5	502	211	56.25	15.25	—	4,181.5	1,290.5	40,549.75

A review of this table shows that the total mileage of public roads reported for 1914 was 50,758 miles, of which there were 1,105 miles of macadam, 4,363½ miles of sand-clay or topsoil; 502 miles of gravel; 561¼ miles of specially surfaced (concrete bituminous macadam, asphalt macadam, etc.); and 4,181½ miles of road graded but not surfaced. This makes a total of 10,208¼ miles of surfaced and improved road in the State, as reported for 1914. Of this mileage of improved road, the following were constructed during 1914:

48 1-6 miles macadam,
1,619 1-2 miles sand-clay or topsoil,
211 miles of gravel,
15 1-4 miles of specially surfaced,
1,290 1-2 miles of graded but not surfaced.

This leaves 40,549¼ miles of unimproved dirt roads in the State.

TABLE IV

Use of Convict Labor in Road Construction During 1914

This table gives the counties which use short-term prisoners on their own public roads and the counties which lease their convicts for road work to other counties. In a few instances the State, through special enactment, has undertaken to build certain roads with convict labor.

Column 1 gives the average number of convicts, by counties, used on the public roads during 1914.

Column 2 gives the names of counties to whom other counties leased their convicts during 1914.

Column 3 gives the average cost per day of guarding, feeding, and general care of convicts.

Column 4 gives the number of State convicts used in road work, by counties. The General Assembly of 1913 passed an act by which any county or township or good roads district may obtain State convicts by making application for them and by having their plans furnished or approved by the State Geological and Economic Survey. Roads built by such labor must be under the direction of the State Geological and Economic Survey.

Column 5 gives the opinions of those making the reports in regard to the effect of such work upon the convict and its value to the counties or the State.

Column 6 gives the estimated value in money of the convict labor used on the roads, estimating the number of days worked at 200 and the value per day per convict at \$1.25.

TABLE IV. USE OF CONVICT LABOR IN ROAD CONSTRUCTION IN NORTH CAROLINA DURING 1914.

County	Township	Average No. of Convicts Used	Leased Counties to Whom Leased	Average Cost Per Day of Guarding, Feeding, Etc.	State Convicts, Number	Value of Such Work to Convict and to County	Estimated Value of Convict Labor at \$1.25 Per Day
Alamance				\$			\$
Alexander							
Alleghany							
Anson		30		.75		Good results	7,500
Ashe			Rockingham				
Avery							
Beaufort		30					7,500
Bertie		5		\$12 per mo.		This is what they should do	1,250
Bladen							
Brunswick			Columbus	.75		Best use to be made of them	37,500
Buncombe		150				Expensive without a large force	7,500
Burke		30	Catawba	.65			
Cabarrus			Pasquotank				
Caldwell			Craven and Edgecombe				
Canden							
Carteret							
Caswell							
Catawba			Leased				
Chatham			Pasquotank				
Cherokee			Haywood				
Chowan							
Clay							
Cleveland							
Columbus		35		.75		Good results under proper government	8,750
Craven		25		.57½		The ideal work for them. Everything in favor of it	6,250
Cumberland		28		.50			
Currituck			Pasquotank				

TABLE IV—Continued.

County	Township	Average No of Con- victs Used	Leased Counties to Whom Leased	Average Cost Per Day of Guarding, Feeding, Etc.	State Con- victs, Number	Value of Such Work to Convict and to County	Esti- mated Value of Con- vict Labor at \$1.25 Per Day
Dare.....				\$.....			\$.....
Davidson.....	Lexington.....	20					5,000
Davie.....			Guilford.....			The very best place for them.....	
Duplin.....		68		.60		Have all we can work of our own.....	17,000
Durham.....		40				Healthful and beneficial to general condition if properly cared for.....	10,000
Edgecombe.....						Convicts should be used on highways.....	32,500
Forsyth.....		130		.71		Worked well in Louisburg Township.....	6,250
Franklin.....	Louisburg.....	25				The only practical way of handling evil doers.....	12,500
Gaston.....		50	Pasquotank.....			Approve of it.....	
Gates.....			Person.....			Entirely satisfactory where properly handled.....	2,250
Graham.....						The best way to handle them is on public roads.....	19,000
Granville.....		9				It is specially good in that he is fitted to do val- uable work while in service.....	7,500
Greene.....		76		.50			2,500
Guilford.....		30		1.00			5,500
Halifax.....					40	Should be worked on county highways.....	14,500
Harnett.....	(One township).....	10		.60		Where th y all should be worked.....	
Haywood.....		20-24	Halifax and Warren, Rich Square Twp., Norhup..	.80-.90		Proper thing.....	
Henderson.....		18					
Hertford.....							
Hoke.....							
Hyde.....							
Iredell.....		25	Haywood.....	1.25		Do not approve of it.....	7,250
Jackson.....							

Johnston.....	Smithfield-Clayton.....	20		1.00		All convicts everywhere ought to be worked on public roads. That is where they should be used.	5,000
Jones.....			Leased.				
Lee.....			Union and Anson.....				
Lenoir.....		50		.45		With proper supervision it is very satisfactory.	12,500
Lineolt.....							
McDowell.....					30		
	Marion.....		Gaston and Cleveland.....			Would do great deal of good for State prisoners to open up a few links.	
	Nebo.....					State should put her convicts on the roads of the State.	
	Old Fort.....					Do not have enough to justify working them.	
Macon.....			Haywood.....		35		
Madison.....							
Martin.....							
	Robersonville.....		Leased.				
	Williamston.....	100	Edgecombe.....	.75			25,000
Mecklenburg.....							
Mitchell.....						Don't think there can be any economy in it.	
Montgomery.....			Randolph and Stanly.....				
Moore.....							
	Bonsalem.....		Leased.				
	Greenwood.....					Can do more good on roads than anywhere else in State, as free labor think it is a low calling to work on public roads.	15,250
Nash.....							
	Nashville.....						
	Manning's Road District.....	10-12		1.00		Good thing.	
	Rocky Mount Road Dist.....	50		.89		Proper work.	
New Hanover.....		100		.71		The only proper place for convicts.	25,000
Northampton.....							5,000
	Rich Square.....	20					
Onslow.....							
Orange.....			Durham and Alamance.....				
Pamlico.....			Give them to other counties.....				
Pasquotank.....		30	Sampson.....			Right thing for them.	
Pender.....						Most economical way if properly managed.	7,500
						They should work the county roads.	7,500

TABLE IV.—Continued.

County	Township	Average No. of Convicts Used	Leased Counties to Whom Leased	Average Cost Per Day of Guarding, Feeding, Etc.	State Convicts, Number	Value of Such Work to Convict and to County	Estimated Value of Convict Labor at \$1.25 Per Day
Perquimans	Person	38	Edgecombe	\$.50		Think the convict poor labor for the road They should be used on public roads.	\$ 2,000
Pitt	Greenville	40-45		.55			11,250
Polk		30	Henderson, Rutherford, McDowell, Gaston	.50		Camps using them build good roads; in favor of it.	
Randolph		10		1.00	50	Expensive but sometimes other labor not available.	2,500
Richmond		40		.60			10,000
Robeson		60		.64			15,000
Rockingham		60		1.00			15,000
Rowan		90				Very little cheaper than contracting roads.	22,500
Rutherford			Henderson				
Stumpson		20		.50		Best place to work them.	5,000
Scotland			Richmond			In favor of it.	6,250
Stanly		25		.85			
Stokes							
Surry			Rockingham			The place for them.	
Swain						O. K.	2,500
Transylvania		10		.75			
Tyrrell							
Union		30	Franklin and Warren	.54		In favor of it.	7,500
Vance							
Wake		79		1.00		Thoroughly pleased with results here.	19,750
Warren		14				Do not think much of it.	3,500
Washington						Good.	1,750
Watauga		7					

Wayne.....	35				Better than hired labor.....	8,750
Wilkes.....					Would be good plan.....	
Wilson.....	55			.65	Think they should be so employed.....	13,750
Yadkin.....				.50		
Yancey.....						
Totals.....	1,888					\$ 460,250

Table IV gives data in regard to the use of convict labor on the public roads in 1914. This shows that there were 1,888 short-term convicts used by the counties during 1914 and 155 State convicts. Thirty-one counties leased their convicts to other counties for use on public roads. The average cost for guarding, feeding, and general care of a convict ranges from 45 cents to \$1 per day. Estimating the value of the convict labor at \$1.25 per day per man and the number of days worked during the year at 200, gives the total value of convict labor for 1914 of \$460,250.

TABLE V

What Was Spent on Roads in 1914 and How It Was Spent

In this table is brought together the revenue from all sources (including taxes, subscriptions, bond issues, labor tax, convict labor, etc.) used on the public roads during 1914. None of the counties have kept exact figures in all cases as to the proportion of bond issues spent during this year, but it is believed that the figures given are fairly accurate. In this table is also given the number of miles of road surfaced and graded, together with estimated cost per mile of such improvements. Along with this statement is worked out the total amount spent in road construction during 1914 and an estimated statement as to the amount spent in the maintenance or upkeep of all the public roads during 1914.

Column 1 gives the funds from all sources except bond issues. This is given entirely by counties, but in many instances the sums given represent money raised by special taxes in certain townships. This, however, is given in detail in Table I.

Column 2 gives the estimated proportion of funds raised from bond issues spent during 1914. This is given by counties and townships.

Column 3 gives the estimated value of the free-labor tax, valuing it at \$1 per day per man.

Column 4 gives the estimated value of convict labor as worked out in Table IV.

Column 5 gives the total amounts from all sources spent on road work in 1914.

Column 6 gives the number of miles of macadam road built in 1914, and column 7 gives the cost per mile of this type of road.

Column 8 gives the number of miles of sand-clay or topsoil road built in 1914, and column 9 the cost of this type of road per mile.

Column 10 gives the number of miles of gravel road built in 1914 and column 11 the cost per mile.

Column 12 gives the number of miles of specially surfaced road (including asphalt macadam, bituminous macadam, concrete, etc.) built in 1914, and column 13 gives the cost per mile of these types of road.

Column 14 gives the number of miles of road graded but not surfaced during 1914, and column 15 gives the cost per mile for grading.

Column 16 gives the estimated total cost of roads graded and surfaced during 1914.

Column 17 gives the estimated amount spent on maintenance and repair during 1914.

Columns 16 and 17 do not represent all the money given in column 5, as in many instances a certain amount of the road tax is used for interest and sinking fund on bond issues and in some instances for bridge building or bridge maintenance.

TABLE V. WHAT WAS SPENT ON ROADS

County	(Bond Issues) Township	Funds from All Sources Except Bond Issues	Estimated Funds from Bond Issues	Estimated Value Labor Tax at \$1.00 Per Day	Estimated Value of Con- vict Labor at \$1.25 Per Day	Total Amounts Spent	Number Miles Macadam Built in 1914
Alamance.....		\$ 19,033.98	\$.....	\$ 6,000	\$.....	\$ 25,033.98	-----
Alexander.....		131.60		9,000		9,131.60	-----
	Ellendale.....	1,000.00				1,000.00	-----
Alleghany.....		501.60		9,800		10,301.60	-----
Ans n.....		23,677.40		12,000	7,500	43,177.40	-----
Ashe.....		20.00		8,000		8,020.00	-----
Avery.....		4,508.00				4,508.00	-----
Beaufort.....		9,159.03	25,000	3,600	7,500	25,259.03	-----
Bertie.....		14,580.98		12,000	1,250	27,830.98	-----
Bladen.....		6,625.60				6,625.60	-----
	Brown Marsh.....		5,000			5,000.00	-----
	Carver's Creek.....		5,000			5,000.00	-----
Brunswick.....		5,600.40				5,600.40	-----
	Northwest.....		10,000			10,000.00	-----
	Shallotte.....		5,000			5,000.00	-----
	Town Creek.....		5,000			5,000.00	-----
Buncombe.....		61,424.16	50,000	11,340	37,500	92,764.16	-----
Burke.....		11,375.64				11,375.64	-----
	Morganton.....		10,000			10,000.00	-----
Cabarrus.....		32,080.60	25,000		7,500	64,580.60	-----
Caldwell.....		2,639.40		18,000		20,639.40	-----
Camden.....		60.00		6,000		6,060.00	-----
Carteret.....		5,787.60				5,787.60	-----
	Morehead.....		5,000	4,800		9,800.00	-----
	Newport.....		5,000			5,000.00	-----
Caswell.....		5,412.80		6,000		11,412.80	-----
Catawba.....		27,214.05				27,214.05	-----
	Hickory.....		10,000			10,000.00	-----
	Newton.....		10,000			10,000.00	-----
Chatham.....		10,124.56		9,000		19,124.56	-----
Cherokee.....		25,105.60		3,600		28,705.60	-----
	Murphy.....		40,000			40,000.00	5
Chowan.....		5,831.80				5,831.80	-----
Clay.....		1,113.00		1,200		2,313.00	-----
Cleveland.....		23,852.20				23,852.20	-----
	No. 4.....		10,000			10,000.00	-----
	No. 6.....		15,000			15,000.00	-----
	No. 7.....		5,000			5,000.00	-----
	No. 8.....		5,000			5,000.00	-----
Columbus.....		13,775.40		24,000	8,750	46,525.40	-----
Craven.....		29,579.40			6,250	35,829.40	-----
Cumberland.....		26,872.00				26,872.00	-----
Currituck.....		143.60		5,000		5,143.60	-----
Dare.....		61.60		3,000		3,061.60	-----
Davidson.....		23,217.00		6,000	5,000	34,217.00	-----
Davie.....		22,708.13	120,000*			142,708.13	-----
Duplin.....		5,604.40		18,000		23,604.40	-----
	Island Creek.....		7,500*			7,500.00	-----
Durham.....		50,123.34			17,000	67,123.34	1
Edgecombe.....		31,882.13			10,000	41,882.13	-----
Forsyth.....		88,390.69	25,000		32,500	145,890.69	-----
Franklin.....		21,157.20			6,250	27,407.20	-----
	Franklinton.....		20,000			20,000.00	-----
	Louisburg.....		40,000			40,000.00	-----

*Estimated.

DURING 1914, AND HOW IT WAS SPENT.

Cost Per Mile	Number Miles Sand-Clay and Topsoil Built in 1914	Cost Per Mile	Number Miles Gravel Built in 1914	Cost Per Mile	Number Miles Specially Surfaced, 1914	Cost Per Mile	Number Miles Graded but Not Surfaced, 1914	Cost Per Mile	Estimated Total Cost of Roads Graded and Surfaced in 1914	Estimated Amount Spent in Maintenance and Repair During 1914			
\$-----	-----	\$-----	-----	\$-----	-----	\$-----	5	\$-----	500	\$-----	2,500	\$-----	11,533.98
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	10,131.60
-----	19	200-350	15	600	-----	-----	13	600	22,015	9,901.60	20,562.40	8,020.00	20,562.40
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	4,508.00	-----	-----	-----
-----	2	800*	-----	-----	-----	-----	-----	-----	1,600	23,659.03	-----	-----	23,659.03
-----	5	300*	-----	-----	-----	-----	-----	-----	1,500	25,330.98	-----	-----	25,330.98
-----	3	500*	-----	-----	-----	-----	20*	500*	11,500	3,125.60	-----	-----	3,125.60
-----	-----	-----	-----	-----	-----	-----	10*	500*	-----	-----	-----	-----	-----
-----	20	900	-----	-----	-----	-----	10*	500*	-----	-----	-----	-----	-----
-----	-----	-----	-----	-----	-----	-----	-----	-----	18,000	3,100.40	-----	-----	3,100.40
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
-----	4	1,000	-----	-----	-----	-----	27.5	2,000	59,000	33,764.16	-----	-----	33,764.16
-----	6	1,000*	-----	-----	-----	-----	-----	-----	10,000	9,075.64	-----	-----	9,075.64
-----	6	1,000*	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
-----	20	1,500	-----	-----	-----	-----	5	1,000	35,000	29,580.60	-----	-----	29,580.60
-----	5	1,200*	-----	-----	-----	-----	10	800	14,000	6,639.40	-----	-----	6,639.40
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	6,060.00	-----	-----	6,060.00
-----	10	500	-----	-----	-----	-----	7	200	6,400	12,587.60	-----	-----	12,587.60
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
-----	25	1,050	-----	-----	-----	-----	10	800	34,250	11,412.80	-----	-----	11,412.80
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	1,222.05	-----	-----	1,222.05
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
-----	5	1,850	2	3,080	-----	-----	4	800	3,200	15,924.56	-----	-----	15,924.56
4,600	5	1,850	2	3,080	-----	-----	-----	-----	38,410	10,795.60	-----	-----	10,795.60
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	5,831.80	-----	-----	5,831.80
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	2,313.00	-----	-----	2,313.00
-----	30	1,000	-----	-----	-----	-----	-----	-----	30,000	2,852.20	-----	-----	2,852.20
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
-----	25	350	-----	-----	-----	-----	125	200	33,750	8,775.40	-----	-----	8,775.40
-----	-----	-----	-----	-----	-----	-----	15	750	11,250	24,577.40	-----	-----	24,577.40
-----	35	600	-----	-----	-----	-----	-----	-----	21,000	5,872.00	-----	-----	5,872.00
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	5,143.60	-----	-----	5,143.60
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	3,061.60	-----	-----	3,061.60
-----	3	1,000*	-----	-----	-----	-----	10	750	10,500	23,717.00	-----	-----	23,717.00
-----	57	2,000	-----	-----	-----	-----	10	800	122,000	10,708.13	-----	-----	10,708.13
-----	10	400-1,000	-----	-----	-----	-----	10	50	7,500	21,604.40	-----	-----	21,604.40
5,000	-----	-----	7	2,250	5	2,800*	7	1,500-2,000	47,000	18,123.34	-----	-----	18,123.34
-----	5	1,000*	-----	-----	-----	-----	10	500	10,000	31,882.13	-----	-----	31,882.13
-----	20	1,800	-----	-----	4	8,000*	10	1,000	78,000	28,890.69	-----	-----	28,890.69
-----	50	500	-----	1,000	5	2,000*	5	500	62,500	11,007.20	-----	-----	11,007.20

TABLE V—

County	(Bond Issues) Township	Funds from All Sources Except Bond Issues	Estimated Funds from Bond Issues	Estimated Value Labor Tax at \$1.00 Per Day	Estimated Value of Con- tract Labor at \$1.25 Per Day	Total Amounts Spent	Number Miles Macadam Built in 1914
Gaston.....		\$ 43,757.00	\$	\$	\$ 12,500	\$ 56,257.00	8
Gates.....		1,796.08				1,796.08	
	Holly Grove.....		6,500			6,500.00	
Graham.....		5,133.00				5,133.00	
	Cheoah.....		3,000			3,000.00	
Granville.....		30,244.27		12,000		42,244.27	
Greene.....		11,105.26		12,000	2,250	25,355.26	
	Bulls Head		6,000			6,000.00	
	Hookertown						
	Precinct of Sugg		3,000			3,000.00	
	Township.....						
	Jason.....		3,000			3,000.00	
	Olds.....		6,000			6,000.00	
	Ormondsville		6,000			6,000.00	
	Shine.....		3,000			3,000.00	
	Snow Hill.....		6,000			6,000.00	
Guilford.....		89,708.00			19,000	108,708.00	
Halifax.....		33,924.60			7,500	41,424.60	
	Enfield.....		40,000			40,000.00	
	Halifax.....		60,000			60,000.00	
Harnett.....		9,698.40		9,000	2,500	21,198.40	
	Black River.....		2,500			2,500.00	
Haywood.....		18,374.20		18,000	5,500	41,874.20	4
	Beaverdam.....		10,000			10,000.00	
Henderson.....		10,584.40	25,000	3,000	14,500	53,084.40	
	Edneyville.....		12,000			12,000.00	
	Hendersonville.....		50,000			50,000.00	
Hertford.....		13,149.00		15,000		28,149.00	
Hoke.....		7,969.20	10,000			17,969.20	
Hyde.....		1,739.29				1,739.29	
Iredell.....		41,401.51	50,000		7,250	98,651.51	
Jackson.....		9,134.00		8,000		17,134.00	
	Cullowhee.....		15,000			15,000.00	
	Dillsboro.....		15,000			15,000.00	
	Sylva.....		30,000			30,000.00	
Johnston.....		36,349.24		10,800	5,000	52,149.24	
	Meadows.....		25,000			25,000.00	
Jones.....		7,478.79		2,000		9,478.79	
Lee.....		8,951.60	40,000			48,951.60	
Lenoir.....		54,332.12			12,500	66,822.12	
Lincoln.....		12,449.20	90,000*			102,449.20	
Macon.....		8,456.08		6,000		14,456.08	4
	Franklin.....		40,000*			40,000.00	
McDowell.....		21,930.59		12,000		33,930.59	
	Marion.....		25,000			25,000.00	
	Nebo.....		5,000			5,000.00	
	Old Fort.....		20,000			20,000.00	
Madison.....		10,922.70	130,000	9,000		149,922.70	
Martin.....		10,666.63		10,200		20,866.63	
	Robersonville.....		9,000			9,000.00	
	Williamston.....		5,000			5,000.00	
Mecklenburg.....		135,419.40		8,000	25,000	168,419.40	20
Mitchell.....		11,000.00		4,400		15,400.00	
	Grassy Creek.....		9,000			9,000.00	
Montgomery.....		22,609.89		8,000		30,609.89	

Continued.

Cost Per Mile	Number Miles Sand-Clay and Topsoil Built in 1914	Cost Per Mile	Number Miles Gravel Built in 1914	Cost Per Mile	Number Miles Specially Sur- faced, 1914	Cost Per Mile	Number Miles Graded but Not Surfaced, 1914	Cost Per Mile	Estimated Total Cost of Roads Graded and Surfaced in, 1914	Estimated Amount Spent in Mainte- nance and Repair During 1914
\$3,000-4,000	14	700-1,250		\$		\$	23	\$25	\$ 41,650 6,500	\$ 14,607.00 1,716.08
							2	1,500	3,000	5,133.00
	10	250-1,500							8,750	15,894.27
	40	800							32,000	15,155.26
	40	1,000*							40,000	36,168.00
	55	1,300	6	2,100			10	600-700	90,600	40,824.60
	10	1,000*					5	600*	13,000	10,698.40
4,000*			2	2,000*					20,000	31,874.20
	60	800-1,000					35	500	71,500	27,584.40
	25	500					25	100	15,000	28,149.00 2,969.20
	40	1,650							66,000	1,739.29
							20	3,000*	60,000	14,651.51 17,134.00
	50	500					10*	200*	27,000	42,149.24
	4	500							2,000	5,478.79
	20	1,000	15	1,500					42,500	451.60
	30	1,000							30,000	36,822.12
	50*	1,500*					20*	1,000*	95,000	1,449.20
4,000*	5	1,800*					11	1,500*	41,500	7,956.08
							6			
	36	2,000					3	600-5,500	81,150	12,000.00
	20	2,000								
	6	2,000*								
	10	2,000*								
	4	3,000*					60	2,000*	132,000	9,000.00
	55	250*					5	50*	14,000	16,866.63
	15									
	40									
4,000	30	1,500							125,000	43,419.40
							3	3,000	9,000	15,400.00
	15	150	20	200			25	50	7,500	21,609.89

TABLE V—

County	(Bond Issues) Township	Funds from All Sources Except Bond Issues	Estimated Funds from Bond Issues	Estimated Value Labor Tax at \$1.00 Per Day	Estimated Value of Con- vict Labor at \$1.25 Per Day	Total Amounts Spent	Number Miles Macadam Built in 1914
Moore.....		\$ 22,844.20	\$	\$	\$	\$ 22,844.20	
	Carthage.....		3,900			3,900.00	
	Mineral Springs (Road Districts).....	41,452.60	7,000		15,250	7,000.00	
Nash.....						56,702.60	
	Coopers Creek.....		10,000			10,000.00	
	Rocky Mount.....		25,000			25,000.00	
	Mannings.....		30,000			30,000.00	
New Hanover.....		17,449.60	40,000*		25,000	57,449.60	1 $\frac{1}{8}$
Northampton.....		16,840.80		8,100	5,000	29,940.80	
	Jackson.....		8,000			8,000.00	
	Rich Square.....		4,000			4,000.00	
Onslow.....		4,550.20		4,800		9,350.20	
	Jacksonville.....		2,000			2,000.00	
Orange.....		20,171.20	215,000			235,171.20	
Pamlico.....		3,884.00		5,440		9,324.00	
Pasquotank.....		10,420.07	5,000		7,500	22,920.07	
Pender.....		7,382.00		11,200		18,582.00	
Perquimans.....		13,589.41				13,589.41	
Person.....		12,515.40			2,000	14,515.40	
Pitt.....		24,533.40		10,000	11,250	46,783.40	
	Greenville.....		40,000			40,000.00	
Polk.....		10,100.00	96,000	4,000		110,100.00	
Randolph.....		63,249.80		14,400	2,500	80,149.80	
Richmond.....		32,002.40	6,000		10,000	48,002.40	
Robeson.....		37,958.98		29,440	15,000	82,398.98	
Rockingham.....		29,053.60	30,000	5,920	15,000	79,973.60	
Rowan.....		54,742.40			22,500	77,242.40	3
Rutherford.....		16,954.01	250,000			276,954.01	
Sampson.....		14,493.60	25,000	18,000	5,000	62,493.60	
Scotland.....		25,093.80	10,000			35,093.80	
Stanly.....		13,783.60		4,240	6,250	24,273.60	
Stokes.....		20,416.80		12,000		32,416.80	
	Danbury.....		15,000			15,000.00	
	Meadows.....		40,000			40,000.00	
	Sauratown.....		50,000			50,000.00	
Surry.....		7,726.00		12,000		19,726.00	
	Mount Airy.....		58,000			58,000.00	
Swain.....		2,804.70		6,000		8,804.70	
Transylvania.....		8,826.70		6,000	2,500	17,326.70	
Tyrrell.....		512.40		9,000		9,512.40	
Union.....		22,265.75		21,000	7,500	50,765.75	2
Vance.....		18,305.55	100,000			118,305.55	
Wake.....		81,724.47			19,750	101,474.47	
Warren.....		13,054.60			3,500	16,554.60	
	Warrenton.....		17,000			17,000.00	
Washington.....		10,398.40		3,000	1,750	15,148.40	
Watauga.....		5,601.90		9,000		14,601.90	
Wayne.....		24,799.00		16,800	8,750	50,349.00	
	Goldsboro.....		54,000			54,000.00	
Wilkes.....		9,641.40		30,000		39,641.40	
Wilson.....		38,874.40			13,750	52,624.40	
Yadkin.....		5,242.80		9,000		14,242.80	
Yancey.....		2,819.00	54,000	18,000		74,819.00	
Totals.....		2,044,738.28	2,422,400	591,080	460,250	5,406,945.18	48 $\frac{1}{8}$

Continued.

Cost Per Mile	Number Miles Sand-Clay or Topsoil Built in 1914	Cost Per Mile	Number Miles Gravel Built in 1914	Cost Per Mile	Number Miles Specially Surfaced, 1914	Cost Per Mile	Number Miles Graded but Not Surfaced, 1914	Cost Per Mile	Estimated Total Cost of Roads Graded and Surfaced in 1914	Estimated Amount Spent in Maintenance and Repair During 1914
\$	20	\$ 300*		\$		\$	5	\$ 200*	\$ 10,900	\$ 15,344.20
	13	300								
	29	800-1,000*	10	1,800*			125	400-500*	100,350	21,352.60
	25									
	4	800-1,000	2	1,800*			14	400-500*		
5,100	5	2,000*					9	1,362	41,828	15,621.60
			10	1,200					12,000	23,940.80
	5	400							2,000	9,350.20
	61	3,000	4	3,000*			12	1,600	214,200	4,971.20
										9,324.00
										22,920.07
	18	500*							9,000	9,582.00
	5	1,500*					25	35	875	12,714.41
	45	850-1,000							7,500	7,015.40
									45,000	17,408.40
	3	2,300					45	2,000	96,900	4,000.00
			75	500			5	250-350	39,000	41,149.80
	30	500	10	500			10	100	21,000	27,002.40
	35	1,000*					5	500*	37,500	44,898.98
							10	1,200	12,000	67,973.60
3,000	25	1,200					20	800	55,000	22,242.40
	14	1,500*					250	1,000*	271,000	5,954.01
	35	500							17,500	18,000.00
	40	500					5	200	21,000	8,093.80
	3*	2,100*					8	1,500	18,300	5,973.60
	65	1,500					5*	1,000*	102,500	12,000.00
	30	1,750					15	1,250	58,750	18,976.00
	2*	1,800*					3*	1,200*	7,200	1,604.70
	5*	1,800*					5*	1,200*	15,000	2,326.70
							6	50	300	9,212.40
2,100							8	1,000	12,200	38,565.75
	80	1,255							100,400	17,905.55
	25	300	30	300	1 1/2	8,800			27,500	73,974.47
	15 1/2	1,100							17,050	1,604.60
	10*	200					50*	50	4,500	10,648.40
										14,601.90
	50	750	5	1,000*			20	600	54,500	49,849.00
							50	500*	25,000	14,641.40
	9	1,000							9,000	43,624.40
										14,242.80
	3	4,200					17	3,200	67,000	7,419.00
	1,616 1/2		211		15 1/2		1,290.5		3,199,278	1,690,30

Table V gives a general statement in regard to expenditures on roads during 1914 from all sources and what was accomplished with these expenditures. This table shows that there was a total expenditure from all sources (taxes, bond issues, labor tax, and convict labor) during 1914 of \$5,406,945.18, of which \$2,044,738.28 was the expenditure from all sources except bond issues. There were \$2,422,400 from bond issues, and it is estimated that \$591,080 of free labor and \$460,250 convict labor were used in road work during 1914.

This table also gives the mileage of surfaced and graded road obtained from this expenditure, and shows that during 1914 there were 48 1-6 miles of macadam road constructed at an average cost of \$3,923 per mile; 1,619½ miles of sand-clay or topsoil at an average cost of \$1,180 per mile; 211 miles of gravel road at an average cost of \$2,113 per mile; 15¼ miles of specially surfaced road at an average cost of \$5,150 per mile; 1,290½ miles of road graded at an average cost of \$1,002 per mile.

It is estimated that \$3,199,298 were spent in surfacing and grading these roads during 1914, and \$1,690,307.59 in the maintenance and repair of the dirt and surfaced roads. Cost data, whether for construction or maintenance, have not been kept by any of the counties up to the present time.

TABLE VI

*Statement by Counties and Townships as to Administrative Boards
and Systems of Maintenance*

Column 1 gives the name of the board which controlled road matters during 1914, by counties and townships.

Column 2 gives the manner in which the public roads of the various counties and townships are maintained.

Column 3 gives, by counties, the estimated amount of tax money, value of free labor, etc., used in the maintenance or repair of the public roads during 1914.

Column 4 states whether or not the split-log drag is used in maintenance work, and what other implements were used.

Column 5 gives the sentiment in the county as reported as to use of wide tires.

TABLE VI. ADMINISTRATION AND MAINTENANCE.

County	Township	Administrative Board	How Roads are Maintained	Estimated Amt. of Tax Money and Value of Free Labor Used in 1914	Use of Drag	Sentiment Toward Use of Wide Tires
Alamance		County Com.		\$ 11,533 98		
Alexander		County Road Com.	Free labor	10,431 60	Not used	Nothing said.
Alleghany		County Com.		9,901 60		
Anson	(Balance of Co.), Jonesboro. Morven	County Com. Township Road Com. Township Road Com.	Free labor	20,562 40	Used	Favorable.
Ashe		Township Trustees				
Avery		County Road Com.		8,020 00	Not used	Nothing said.
Beaufort		Township Road Com.		4,508 00		
Bertie		County Com.		23,659 03	Used in places.	
Bladen		County Com.		25,330 98	Used	Slight.
Brunswick		County Com.	Part of original bond issue	3,125 60	Used	
Buncombe		Township Road Com.		3,100 40		
Burke		County Com.	Free labor and general fund	33,764 16	Used	Very little.
Cabarrus		County Com.	Free labor and 20c levy	9,075 64	Used	Favorable.
Caldwell		County Com.	Road fund	29,580 60	Used	Not much.
Camden		County Com.	Free labor	6,639 40	Used	None.
Carleton		County Com.	Special maintenance fund	6,060 00	Not used	Favorable.
	(Balance of Co.), Newport. Morehead	County Com. Township Road Com. Township Trustees		12,587 60	Used	
Caswell		Township Road Com.	10 cent tax			
Catawba		Township Trustees	Balance of tax after interest and sinking fund.	11,412 80	Not used	None.
		Township Road Com.	Free labor and tax.			
Chatham		County Road Com.		1,222 65	Road machine and drag	None.
Cherokee		Highway Com.		15,924 56	Used	Favorable.
Chowan		Township Trustees		10,795 60	Used	None.
Clay		Township Justices		5,831 80	Used	Not expressed.
Cleveland		Township Road Com.	Tax in each township	2,313 00	Not used	Some.
Columbus		County Road Com.	Special fund and free labor	2,852 20	Used somewhat	Very much.
				8,775 40	Used	Growing rapidly.

		County Com.	Road tax primarily for maintenance.				
Craven		County Com.	Special fund.	24,577 40	Used	Favorable.	
Cumberland		County Com.	Citizens help at times.	5,872 00	York State Road	Considerable.	
Currituck		County Com.		5,143 60	Hone	None apparent.	
Dare		County Com.		3,061 60			
Davidson		County Road Com.		23,717 00	Used	Favorable.	
Davie		County Road Com.		10,708 13	Used	Favorable.	
Duplin		County Road Com.		21,604 40	Used	Favorable and growing.	
Island Creek			Special fund.				
Warsaw		County Com.	Regular road fund.	18,123 34	Used	Beginning.	
Durham		County Com.	Road fund.	31,882 13	Used	Favorable.	
Edgecombe		County Highway Com.	Road fund.	28,800 69	Used—one in each township.	Favorable.	
Forsyth		Township Road Com.	Convicts are used.	11,097 20	Not used.	Some.	
Franklin							
Louisburg		County Com.	Road tax.	14,607 00	Steel drags to some extent.	Some.	
Gaston		Township Road Com.	Free labor—county furnishes bridges.	1,796 08		Mentioned.	
Gates		County Com.	Repair forces working all the time.	5,133 00			
Graham		County Com.	General road fund.	15,894 27	40-50 given out in last 2 years.	Approve.	
Granville		County Com.	Disorganized patch work.	15,155 26	Steel drags.	None visible.	
Greene		Co. Com., Co. Rd. Com.		36,168 00	Used to some extent.	Favorable.	
Guilford	(Balance of Co.)	Township Road Com.		40,824 60	Used	Some.	
Halifax	Enfield	Township Road Com.	Free labor.	10,698 40	Used	Some.	
Harnett	Halifax	County Road Com.		31,874 20			
Haywood	(Balance of Co.)	County Com.			Little Winner and a larger machine.	None discussed.	
	Waynesville	Township Road Com.				Some.	
Henderson		Co. Com., Tp. Trustees	Free labor.	27,584 40	Used	Some.	
Hertford		Township Road Com.	Road fund.	28,149 00	Used	None.	
Hoke		County Com.	Special fund.	2,969 20	Used	Law for county.	
Hyde			Special tax for 2 tps.	1,739 29		Favorable.	
	Fairfield	Road Com.					
	Swan Quarter						
	Other Townships.						
Iredell		Township Road Com.	Special fund.	14,651 51	Used	Favorable.	
		County Com.					

TABLE VI—Continued.

County	Township	Administrative Board	How Roads are Maintained	Estimated Amt. of Tax Money and Free Labor Used in 1914	Use of Drag	Sentiment Toward Use of Wide Tires
Jackson		Township Road Trustees	Free labor and special tax	\$17,134.00		None.
Johnston		Township Road Supervisors	Convict force	42,149.24	Used	Very strong.
Jones		Road Com.	Road tax; optional tax	5,478.79	Used	
Lee		County Road Com.	Money left after interest and sinking fund		Used	Favorable.
Lenoir		County Com.	General fund	451.60		Favorable.
Lincoln				38,822.12	Scrapers and heavy steel drags	Favorable.
McDowell				12,000.00		
	Marion	Township Road Com.	Road tax		Steel drag	Not much.
	Noble	Township Road Com.	Free labor		Steel drag	Not very much.
	Old Fort	Township Road Com.	Tax	1,449.20	Split-log drag	Favorable.
Macon		Township Trustees	Township tax	17,956.08	Not used	Favorable.
Madison		County Road Com.		9,000.00		Quite favorable.
Martin				16,866.63		
	Robersonville	Township Trustees			Used	Some.
	Williamston	Township Trustees	Raised by taxation		Used	Some.
Mecklenburg		Co. Com. and Tp. Trustees		43,419.40	Used	None.
Mitchell		County Road Com.		15,400.00		
Montgomery		Co. Com. and Tp. Trustees	Part of road fund used	21,609.89	Used	Very favorable; special act.
Moore				15,344.20		
	Bensalem	Township Road Com.			Used	Favorable.
	Greenwood	Township Road Com.				
	Mineral Springs	Township Road Com.	Regular fund used primarily for maintenance		Used all the time	Favorable.
Nash				21,352.60		Favorable.
	Bailey's Rd. Dist.	Township Road Com.			Not used	Favorable.
	Manning's Rd. D.	Road Com.			Used	Not discussed.
	Rocky Mount Rd. Dist.	Road Com.	General fund		Steel drags	None apparent.

TABLE VI—Continued.

County	Township	Administrative Board	How Roads are Maintained	Estimated Amt. of Tax Money and Value of Free Labor Used in 1914	Use of Drag	Sentiment Toward Use of Wide Tires
Watauga.....			Free labor.....	\$14,601 90		
Wayne.....	(Balance of Co.)..	County Com.....	Free labor.....	49,849 00	Used.....	None known. Some.
Wilkes.....	Goldsboro.....	Township Trustees.....				
Wilson.....		Township Supervisors.....		14,641 40		
		County Com.....		43,624 40	Used.....	Favorable.
Yadkin.....	Tolsonville.....	Township Road Com.....				
Yancey.....		County Com.....		14,242 80		Favorable.
		County Road Com.....		7,419 00		

Table VI gives the statement, by counties and townships, as to administrative boards and systems of maintenance. This gives in detail the counties which use the road drag and other implements in the maintenance of roads, and the attitude of the various counties as to the use of wide tires. In this table, also, is stated the kinds of administrative boards in the various counties and townships.

PUBLICATIONS
OF THE
NORTH CAROLINA GEOLOGICAL AND ECONOMIC SURVEY

BULLETINS

1. Iron Ores of North Carolina, by Henry B. C. Nitze, 1893. 8°, 239 pp., 20 pl., and map. *Out of print.*
2. Building and Ornamental Stones in North Carolina, by T. L. Watson and F. B. Laney in collaboration with George P. Merrill, 1906. 8°, 283 pp., 32 pl., 2 figs. *Postage 25 cents. Cloth-bound copy 50 cents extra.*
3. Gold Deposits in North Carolina, by Henry B. C. Nitze and George B. Hanna, 1896. 8°, 196 pp., 14 pl., and map. *Out of print.*
4. Road Material and Road Construction in North Carolina, by J. A. Holmes and William Cain, 1893. 8°, 88 pp. *Out of print.*
5. The Forests, Forest Lands, and Forest Products of Eastern North Carolina, by W. W. Ashe, 1894. 8°, 128 pp., 5 pl. *Out of print.*
6. The Timber Trees of North Carolina, by Gifford Pinchot and W. W. Ashe, 1897. 8°, 227 pp., 22 pl. *Out of print.*
7. Forest Fires: Their Destructive Work, Causes and Prevention, by W. W. Ashe, 1895. 8°, 66 pp., 1 pl. *Postage 5 cents.*
8. Water-powers in North Carolina, by George F. Swain, Joseph A. Holmes, and E. W. Myers, 1899. 8°, 362 pp., 16 pl. *Out of print.*
9. Monazite and Monazite Deposits in North Carolina, by Henry B. C. Nitze, 1895. 8°, 47 pp., 5 pl. *Out of print.*
10. Gold Mining in North Carolina and other Appalachian States, by Henry B. C. Nitze and A. J. Wilkins, 1897. 8°, 164 pp., 10 pl. *Out of print.*
11. Corundum and the Basic Magnesian Rocks of Western North Carolina, by J. Volney Lewis, 1895. 8°, 107 pp., 6 pl. *Out of print.*
12. History of the Gems Found in North Carolina, by George Frederick Kunz, 1907. 8°, 60 pp., 15 pl. *Out of print.*
13. Clay Deposits and Clay Industries in North Carolina, by Heinrich Ries, 1897. 8°, 157 pp., 12 pl. *Out of print.*
14. The Cultivation of the Diamond-back Terrapin, by R. E. Coker, 1906. 8°, 67 pp., 23 pl., 2 figs. *Out of print.*
15. Experiments in Oyster Culture in Pamlico Sound, North Carolina, by Robert E. Coker, 1907. 8°, 74 pp., 17 pl., 11 figs. *Postage 10 cents.*
16. Shade Trees for North Carolina, by W. W. Ashe, 1908. 8°, 74 pp., 10 pl., 16 figs. *Postage 6 cents. Cloth copies 50 cents extra.*
17. Terracing of Farm Lands, by W. W. Ashe, 1908. 8°, 38 pp., 6 pl., 2 figs. *Postage 4 cents.*
18. Bibliography of North Carolina Geology, Mineralogy, and Geography, with a list of Maps, by Francis Baker Laney and Katherine Hill Wood, 1909. 8°, 428 pp. *Postage 25 cents. Cloth-bound copy, 50 cents extra.*
19. The Tin Deposits of the Carolinas, by Joseph Hyde Pratt and Douglas B. Sterrett, 1905. 8°, 64 pp., 8 figs. *Postage 4 cents.*

20. Water-powers of North Carolina: An Appendix to Bulletin 8, 1910. 8°, 383 pp. *Postage 25 cents.*

21. The Gold Hill Mining District of North Carolina, by Francis Baker Laney, 1910. 8°, 137 pp., 23 pl., 5 figs. *Postage 15 cents. Cloth copies 50 cents extra.*

22. A Report on the Cid Mining District, Davidson County, N. C., by J. E. Pogue, Jr., 1911. 8°, 144 pp., 22 pl., 5 figs. *Postage 15 cents. Cloth copies 50 cents extra.*

23. Forest Conditions in Western North Carolina, by J. S. Holmes, 1911. 8°, 116 pp., 8 pl. *Postage 15 cents.*

24. Loblolly or North Carolina Pine, by W. W. Ashe, Forest Inspector, U. S. Forest Service (and former Forester of the North Carolina Geological and Economic Survey). Prepared in Coöperation with the Forest Service, U. S. Department of Agriculture, 1914. 8°, 176 pp., 27 pl., 5 figs. *Postage 15 cents. Cloth copies 50 cents extra.*

25. Zircon, Monazite, and Other Minerals used in the Production of Chemical Compounds Employed in the Manufacture of Lighting Apparatus, by Joseph Hyde Pratt, Ph.D., 1916. 8°, 120 pp., 3 pl. *Postage 15 cents. Cloth copies 50 cents extra.*

26. A Report on the Virgilina Copper District of North Carolina and Virginia, by F. B. Laney, Ph.D., 1917. 8°, ... pp., ... pl., ... maps. *Postage .. cents. In press.*

27. The Altitudes of North Carolina, 1917. 8°, ... pp. *Postage .. cents. In press.*

ECONOMIC PAPERS

1. The Maple Sugar Industry in Western North Carolina, by W. W. Ashe, 1897. 8°, 34 pp. *Postage 2 cents.*

2. Recent Road Legislation in North Carolina, by J. A. Holmes. *Out of print.*

3. Talc and Pyrophyllite Deposits in North Carolina, by Joseph Hyde Pratt, 1900. 8°, 29 pp., 2 maps. *Postage 2 cents.*

4. The Mining Industry in North Carolina During 1900, by Joseph Hyde Pratt, 1901. 8°, 36 pp., and map. *Postage 2 cents.*

Takes up in some detail Occurrences of Gold, Silver, Lead and Zinc, Copper, Iron Manganese, Corundum, Granite, Mica, Talc, Pyrophyllite, Graphite, Kaolin, Gem Minerals, Monazite, Tungsten, Building Stones, and Coal in North Carolina.

5. Road Laws of North Carolina, by J. A. Holmes. *Out of print.*

6. The Mining Industry in North Carolina During 1901, by Joseph Hyde Pratt, 1902. 8°, 102 pp. *Out of print.*

Gives a List of Minerals found in North Carolina; describes the Treatment of Sulphuret Gold Ores, giving localities; takes up the Occurrence of Copper in the Virgilina, Gold Hill, and Ore Knob districts; gives Occurrence and Uses of Corundum; a List of Garnets, describing Localities; the Occurrence, Associated Minerals, Uses and Localities of Mica; the Occurrence of North Carolina Feldspar, with Analyses; an extended description of North Carolina Gems and Gem Minerals; Occurrences of Monazite, Barytes, Ocher; describes and gives Occurrences of Graphite and Coal; describes and gives Occurrences of Building Stones, including Limestone; describes and gives Uses for the various forms of Clay; and under the head of "Other Economic Minerals," describes and gives Occurrences of Chromite, Asbestos, and Zircon.

7. Mining Industry in North Carolina During 1902, by Joseph Hyde Pratt, 1903. 8°, 27 pp. *Out of print.*

8. The Mining Industry in North Carolina During 1903, by Joseph Hyde Pratt, 1904. 8°, 74 pp. *Postage 4 cents.*

Gives description of Mines worked for Gold in 1903; description of Properties worked for Copper during 1903, together with assay of ore from Twin-Edwards Mine; Analyses of Limonite ore from Wilson Mine; the Occurrence of Tin; in some detail the Occurrences of Abrasives; Occurrences of Monazite and Zircon; Occurrences and Varieties of Graphite, giving Methods of Cleaning; Occurrences of Marble and other forms of Limestone; Analyses of Kaolin from Barber Creek, Jackson County, North Carolina.

9. The Mining Industry in North Carolina During 1904, by Joseph Hyde Pratt, 1905. 8°, 95 pp. *Postage 4 cents.*

Gives Mines Producing Gold and Silver during 1903 and 1904 and Sources of the Gold Produced during 1904; describes the mineral Chromite, giving Analyses of Selected Samples of Chromite from Mines in Yancey County; describes Commercial Varieties of Mica, giving the manner in which it occurs in North Carolina, Percentage of Mica in the Dikes, Methods of Mining, Associated Minerals, Localities, Uses; describes the mineral Barytes, giving Method of Cleaning and Preparing Barytes for Market; describes the use of Monazite as used in connection with the Preparation of the Bunsen Burner, and goes into the use of Zircon in connection with the Nernst Lamp, giving a List of the Principal Yttrium Minerals; describes the minerals containing Corundum Gems, Hiddenite and Other Gem Minerals, and gives New Occurrences of these Gems; describes the mineral Graphite and gives new Uses for same.

10. Oyster Culture in North Carolina, by Robert E. Coker, 1905. 8°, 39 pp. *Out of print.*

11. The Mining Industry in North Carolina During 1905, by Joseph Hyde Pratt, 1906. 8°, 95 pp. *Postage 4 cents.*

Describes the mineral Cobalt and the principal minerals that contain Cobalt; Corundum Localities; Monazite and Zircon in considerable detail, giving Analyses of Thorianite; describes Tantalum Minerals and gives description of the Tantalum Lamp; gives brief description of Peat Deposits; the manufacture of Sand-lime Brick; Operations of Concentrating Plant in Black Sand Investigations; gives Laws Relating to Mines, Coal Mines, Mining, Mineral Interest in Land, Phosphate Rock, Marl Beds.

12. Investigations Relative to the Shad Fisheries of North Carolina, by John N. Cobb, 1906. 8°, 74 pp., 8 maps. *Postage 6 cents.*

13. Report of Committee on Fisheries in North Carolina. Compiled by Joseph Hyde Pratt, 1906. 8°, 78 pp. *Out of Print.*

14. The Mining Industry in North Carolina During 1906, by Joseph Hyde Pratt, 1907. 8°, 144 pp., 20 pl., and 5 figs. *Postage 10 cents.*

Under the head of "Recent Changes in Gold Mining in North Carolina," gives methods of mining, describing Log Washers, Square Sets, Cyanide Plants, etc., and detailed descriptions of Gold Deposits and Mines are given; Copper Deposits of Swain County are described; Mica Deposits of Western North Carolina are described, giving Distribution and General Character, General Geology, Occurrence, Associated Minerals, Mining and treatment of Mica, Origin, together with a description of many of the mines; Monazite is taken up in considerable detail as to Location and Occurrence, Geology, including classes of Rocks, Age, Associations, Weathering, method of Mining and Cleaning, description of Monazite in Original Matrix.

15. The Mining Industry in North Carolina During 1907, by Joseph Hyde Pratt, 1908. 8°, 176 pp., 13 pl., and 4 figs. *Postage 15 cents.*

Takes up in detail the Copper and Gold Hill Copper District; a description of the Uses of Monazite and its Associated Minerals; descriptions of Ruby, Emerald, Beryl, Hiddenite, and Amethyst Localities; a detailed description with Analysis of the Principal Mineral Springs of North Carolina; a description of the Peat Formations in North Carolina, together with a detailed account of the Uses of Peat and the Results of an Experiment Conducted by the United States Geological Survey on Peat from Elizabeth City, North Carolina.

16. Report of Convention called by Governor R. B. Glenn to Investigate the Fishing Industries in North Carolina, compiled by Joseph Hyde Pratt, State Geologist, 1908. 8°, 45 pp. *Out of print.*

17. Proceedings of Drainage Convention held at New Bern, North Carolina, September 9, 1908. Compiled by Joseph Hyde Pratt, 1908. 8°, 94 pp. *Out of print.*

18. Proceedings of Second Annual Drainage Convention held at New Bern, North Carolina, November 11 and 12, 1909, compiled by Joseph Hyde Pratt, and containing North Carolina Drainage Law, 1909. 8°, 50 pp. *Out of print.*

19. Forest Fires in North Carolina During 1909, by J. S. Holmes, Forester, 1910. 8°, 52 pp., 9 pl. *Out of print.*

20. Wood-using Industries of North Carolina, by Roger E. Simmons, under the direction of J. S. Holmes and H. S. Sackett, 1910. 8°, 74 pp., 6 pl. *Postage 7 cents.*

21. Proceedings of the Third Annual Drainage Convention, held under Auspices of the North Carolina Drainage Association; and the North Carolina Drainage Law (codified). Compiled by Joseph Hyde Pratt, 1911. 8°, 67 pp., 3 pl. *Out of print.*

22. Forest Fires in North Carolina During 1910, by J. S. Holmes, Forester, 1911. 8°, 48 pp. *Out of print.*

23. Mining Industry in North Carolina During 1908, '09, and '10, by Joseph Hyde Pratt and Miss H. M. Berry, 1911. 8°, 134 pp., 1 pl., 27 figs. *Postage 10 cents. Cloth copies 50 cents extra.*

Gives report on Virginiana Copper District of North Carolina and Virginia, by F. B. Laney; Detailed report on Mica Deposits of North Carolina, by Douglas B. Sterrett; Detailed report on Monazite, by Douglas B. Sterrett; Reports on various Gem Minerals, by Douglas B. Sterrett; Information and Analyses concerning certain Mineral Springs; Extracts from Chance Report of the Dan River and Deep River Coal Fields; Some notes on the Peat Industry, by Professor Charles A. Davis; Extract from report of Arthur Keith on the Nantahala Marble; Description of the manufacture of Sand-lime Brick.

24. Fishing Industry of North Carolina, by Joseph Hyde Pratt, 1911. 8°, 44 pp. *Out of print.*

25. Proceedings of Second Annual Convention of the North Carolina Forestry Association, held at Raleigh, North Carolina, February 21, 1912. Forest Fires in North Carolina During 1911. Suggested Forestry Legislation. Compiled by J. S. Holmes, Forester, 1912. 8°, 71 pp. *Postage 5 cents.*

26. Proceedings of Fourth Annual Drainage Convention, held at Elizabeth City, North Carolina, November 15 and 16, 1911, compiled by Joseph Hyde Pratt, State Geologist, 1912. 8°, 45 pp. *Out of print.*

27. Highway Work in North Carolina, containing a Statistical Report of Road Work during 1911 by Joseph Hyde Pratt, State Geologist, and Miss H. M. Berry, Secretary, 1912. 8°, 145 pp., 11 figs. *Postage 10 cents.*

28. Culverts and Small Bridges for Country Roads in North Carolina, by C. R. Thomas and T. F. Hickerson, 1912. 8°, 56 pp., 14 figs., 20 pl. *Postage 10 cents.*

29. Report of the Fisheries Convention held at New Bern, N. C., December 13, 1911, compiled by Joseph Hyde Pratt, State Geologist, together with a Compendium of the Stenographic Notes of the Meetings Held on the two trips taken by the Legislative Fish Committee Appointed by the General Assembly of 1909, and the Legislation Recommended by this Committee, 1912. 8°, 302 pp. *Postage 15 cents.*

30. Proceedings of the Annual Convention of the North Carolina Good Roads Association held at Charlotte, N. C., August 1 and 2, 1912, in Coöperation with the North Carolina Geological and Economic Survey. Compiled by Joseph Hyde Pratt, State Geologist, and Miss H. M. Berry, Secretary, 1912. 8°, 109 pp. *Postage 10 cents.*

31. Proceedings of Fifth Annual Drainage Convention held at Raleigh, N. C., November 26 and 27, 1912. Compiled by Joseph Hyde Pratt, State Geologist. 8°, 56 pp., 6 pl. *Postage 5 cents.*

32. Public Roads are Public Necessities, by Joseph Hyde Pratt, State Geologist, 1913. 8°, 62 pp. *Postage 5 cents.*

33. Forest Fires in North Carolina during 1912 and National and Association Coöperative Fire Control, by J. S. Holmes, Forester, 1913. 8°, 63 pp. *Postage 5 cents.*

34. Mining Industry in North Carolina during 1911-12, by Joseph Hyde Pratt, State Geologist, 1914. 8°, 314 pp., 23 pl., 12 figs. *Postage 15 cents.*

Gives detailed report on Gold Mining in various counties with special report on Metallurgical Processes used at the Iola Mine, by Claud Hafer; description of a Cyanide Mill, by Percy Barbour; the new milling process for treating North Carolina Siliceous Gold Ores at the Montgomery Mine, including a description of the Uwarrie Mining Company's Plant; notes on the Carter Mine, Montgomery County, by Claud Hafer; also a description of the Howie Mine and its mill; a detailed report of the Coggins (Appalachian) Gold Mine, by Joseph Hyde Pratt; a list of gems and gem minerals occurring in the United States; special descriptions of Localities where the Amethyst, Beryl, Emerald, and Quartz Gems Occur as taken from United States Geological Survey Report by Douglas B. Sterrett; a report on the Dan River Coal Field, by R. W. Stone, as reprinted from Bulletin 471-B of the United States Geological Survey; a special report on Graphite, by Edson S. Bastin and reprinted from Mineral Resources of United States for 1912; a special report on Asbestos describing both the Amphibole and Chrysotile varieties; a report on the Mount Airy Granite Quarry; special report on Sand and Gravel, giving Uses, Definitions of Various Sands, etc.; the portion of a Bulletin on Feldspar and Kaolin of the United States Bureau of Mines, which relates to North Carolina, and which takes up in detail Occurrences, Methods of Mining, and Descriptions of Localities of Feldspar and Kaolin mines in North Carolina, prepared by Mr. A. S. Watts. In this Economic Paper are also given the names and addresses of producers of the various minerals during the years covered by the report.

35. Good Roads Days, November 5th and 6th, 1913, compiled by Joseph Hyde Pratt, State Geologist, and Miss H. M. Berry, Secretary. 8°, 102 pp., 11 pl. *Postage 10 cents.*

36. Proceedings of the North Carolina Good Roads Association, held at Morehead City, N. C., July 31st and August 1, 1913. In Coöperation with the North Carolina Geological and Economic Survey.—Statistical Report of Highway Work in North Carolina during 1912. Compiled by Joseph Hyde Pratt, State Geologist, and Miss H. M. Berry, Secretary. 8°, 127 pp., 7 figs. *Postage 10 cents.*

37. Forest Fires in North Carolina during 1913 and a Summary of State Forest Fire Prevention in the United States, by J. S. Holmes, Forester, 1914. 8°, 82 pp. *Postage 8 cents.*

38. Forms covering the Organization of Drainage Districts under the North Carolina Drainage Law, Chapter 442, Public Laws of 1909, and Amendments. And Forms for Minutes of Boards of Drainage Commissioners covering the Organization of the Board up to and Including the Issuing of the Drainage Bonds. Compiled by Geo. R. Boyd, Drainage Engineer. 133 pp. *Postage 15 cents.*

39. Proceedings of the Good Roads Institute held at the University of North Carolina, March 17-19, 1914. Held under the auspices of the Departments of Civil and Highway Engineering of the University of North Carolina and The North Carolina Geological and Economic Survey. 8°, 117 pp., 15 figs., 4 pl. *Postage 10 cents.*

40. Forest Fires in North Carolina during 1914 and Forestry Laws of North Carolina, by J. S. Holmes, State Forester, 1915. 8°, 55 pp. *Postage 5 cents.*

41. Proceedings of Seventh Annual Drainage Convention of the North Carolina Drainage Association held at Wilson, North Carolina, November 18 and 19, 1914. Compiled by Joseph Hyde Pratt, State Geologist, and Miss H. M. Berry, Secretary, 1915. 8°, 76 pp., 3 figs. *Postage 5 cents.*

42. Organization of Coöperative Forest-Fire Protective Areas in North Carolina, being the Proceedings of the Special Conference on Forest Fire Protection held as part of the Conference on Forestry and Nature Study, Montreat,

N. C., July 8, 1915. Prepared by J. S. Holmes, State Forester, 1915. 8°, 39 pp. *Postage 4 cents.*

43. Proceedings of the Second Road Institute, held at the University of North Carolina, February 23-27, 1915. Compiled by Joseph Hyde Pratt and Miss H. M. Berry, Secretary, 1916. 8°, 128 pp. *Postage 15 cents.*

44. Highway Work in North Carolina During the Calendar Year Ending December 31, 1914. Compiled by Joseph Hyde Pratt, State Geologist, and Miss H. M. Berry, Secretary, 1916. 8°, . . pp. *In press.*

45. Proceedings of the Eighth Annual Drainage Convention. Held under the Auspices of the North Carolina Drainage Association and the North Carolina Geological and Economic Survey, Belhaven, N. C., November 29, 30, and December 1, 1915. *In press.*

VOLUMES

Vol. I. Corundum and the Basic Magnesian Rocks in Western North Carolina, by Joseph Hyde Pratt and J. Volney Lewis, 1905. 8°, 464 pp., 44 pl., 35 figs. *Postage 32 cents. Cloth-bound copy \$1 extra.*

Vol. II. Fishes of North Carolina, by H. M. Smith, 1907. 8°, 453 pp., 21 pl., 188 figs. *Postage 75 cents. Cloth-bound copy \$1 extra.*

Vol. III. The Coastal Plain Deposits of North Carolina, by William Bullock Clark, Benjamin L. Miller, L. W. Stephenson, B. L. Johnson, and Horatio N. Parker, 1912. 8°, 509 pp., 62 pl., 21 figs. *Postage 35 cents.*

Pt. I.—The Physiography and Geology of the Coastal Plain of North Carolina, by Wm. Bullock Clark, Benjamin L. Miller, and L. W. Stephenson.

Pt. II.—The Water Resources of the Coastal Plain of North Carolina, by L. W. Stephenson and B. L. Johnson.

Vol. IV.—The Birds of North Carolina—*In press.*

BIENNIAL REPORTS

First Biennial Report, 1891-1892, J. A. Holmes, State Geologist, 1893. 8°, 111 pp., 12 pl., 2 figs. *Postage 6 cents.*

Administrative report, giving Object and Organization of the Survey; Investigations of Iron Ores, Building Stone, Geological Work in Coastal Plain Region, including supplies and drinking waters in eastern counties, Report on Forests and Forest Products, Coal and Marble, Investigations of Diamond Drill.

Biennial Report, 1893-1894, J. A. Holmes, State Geologist, 1894. 8°, 15 pp. *Postage 1 cent.*

Administrative report.

Biennial Report, 1895-1896, J. A. Holmes, State Geologist, 1896. 8°, 17 pp. *Postage 1 cent.*

Administrative report.

Biennial Report, 1897-1898, J. A. Holmes, State Geologist, 1898. 8°, 28 pp. *Postage 2 cents.*

Administrative report.

Biennial Report, 1899-1900, J. A. Holmes, State Geologist, 1900. 8°, 20 pp. *Postage 2 cents.*

Administrative report.

Biennial Report, 1901-1902, J. A. Holmes, State Geologist, 1902. 8°, 15 pp. *Postage 1 cent.*

Administrative report.

Biennial Report, 1903-1904, J. A. Holmes, State Geologist, 1905. 8°, 32 pp.
Postage 2 cents.

Administrative report.

Biennial Report, 1905-1906, Joseph Hyde Pratt, State Geologist, 1907. 8°, 60 pp. *Postage 3 cents.*

Administrative report; report on certain swamp lands belonging to the State, by W. W. Ashe; it also gives certain magnetic observations at North Carolina stations.

Biennial Report, 1907-1908, Joseph Hyde Pratt, State Geologist, 1908. 8°, 60 pp., 2 pl. *Postage 5 cents.*

Administrative report. Contains Special Report on an examination of the Sand Banks along the North Carolina Coast, by Jay F. Bond, Forest Assistant, United States Forest Service; certain magnetic observations at North Carolina stations; Results of an Investigation Relating to Clam Cultivation, by Howard E. Enders, of Purdue University.

Biennial Report, 1909-1910, Joseph Hyde Pratt, State Geologist, 1911. 8°, 152 pp. *Postage 10 cents.*

Administrative report, and contains Agreements for Cooperation in Statistical Work, and Topographical and Traverse Mapping Work with the United States Geological Survey; Forest Work, with the United States Department of Agriculture (Forest Service); List of Topographic maps of North Carolina and counties partly or wholly topographically mapped; description of Special Highways in North Carolina; suggested Road Legislation; list of Drainage Districts and Results of Third Annual Drainage Convention; Forestry reports relating to Connolly Tract, Buncombe County and Transylvania County State Farms; certain Watersheds; Reforestation of Cut-over and Abandoned Farm Lands on the Woodlands of the Salem Academy and College; Recommendations for the Artificial Regeneration of Longleaf Pine at Pinehurst; Act regulating the use of and for the Protection of Meridian Monuments and Standards of Measure at the several county seats of North Carolina; list of Magnetic Declinations at the county seats, January 1, 1910; letter of Fish Commissioner of the United States Bureau of Fisheries relating to the conditions of the North Carolina fish industries; report of the Survey for the North Carolina Fish Commission referring to dutch or pound-net fishing in Albemarle and Croatan sounds and Chowan River, by Gilbert T. Rude, of the United States Coast and Geodetic Survey; Historical Sketch of the several North Carolina Geological Surveys, with list of publications of each.

Biennial Report, 1911-1912, Joseph Hyde Pratt, State Geologist, 1913. 8°, 118 pp. *Postage 7 cents.*

Administrative report, and contains reports on method of construction and estimate of cost of road improvement in Stantonsburg Township, Wilson County; report on road conditions in Lee County; report on preliminary location of section of Spartanburg-Hendersonville Highway between Tryon and Tuxedo; report of road work done by United States Office of Public Roads during biennial period; experiments with glutrin on the sand-clay road; report on Central Highway, giving Act establishing and report of trip over the Highway; suggested road legislation; report on the Asheville City watershed; report on the Struan property at Arden, Buncombe County; report on the woodlands on the farm of Dr. J. W. Kilgore, Iredell County; report on examination of the woodlands on the Berry place, Orange County; report on the forest property of Miss Julia A. Thorns, Ashboro, Randolph County; report on the examination of the forest lands of the Butters Lumber Company, Columbus County; proposed forestry legislation; swamp lands and drainage, giving drainage districts; suggested drainage legislation; proposed Fisheries Commission Bill.

Biennial Report, 1913-1914, Joseph Hyde Pratt, State Geologist, 1915. 8°, 165 pp. *Postage 10 cents.*

Administrative report, and contains reports on the work of the State convicts on Hickory Nut Gap Road, Henderson County, and on the link of the Central Highway in Madison County which is being constructed with State convicts; report on road work accomplished by the State Survey and by the United States Office of Public Roads during biennial period; suggested road legislation; a forestry policy for North Carolina; report on investigation. Timber supply of North Carolina; reports on the examination of certain forest lands in Halifax County; report on the ash in North Carolina; report on the spruce forests of Mount Mitchell; report on the forest fire conditions in the northeastern States, by J. S. Holmes. Report on the work of the United States Forest Service in North Carolina in connection with the purchase of forest reserves and their protection; timber tests, including strength of timber, preservation of timber, timber suitable to produce pulp, distillation of certain woods and drying certain woods; suggested forestry legislation; report on the swamp lands and their drainage in North Carolina; suggested drainage legislation; report on magnetic observations made during biennial period; report on the economic value of the fisheries of North Carolina; report on the survey made in Albemarle, Croatan, and Pamlico sounds by the Coast and Geodetic Survey; suggested fisheries legislation.

Biennial Report, 1915-1916, Joseph Hyde Pratt, State Geologist, 1917. 8°, pp. *Postage .. cents.*

Samples of any mineral found in the State may be sent to the office of the Geological and Economic Survey for identification, and the same will be classified free of charge. It must be understood, however, that NO ASSAYS OR QUANTITATIVE DETERMINATIONS WILL BE MADE. Samples should be in a lump form if possible, and marked plainly on outside of package with name of sender, postoffice address, etc.; a *letter* should accompany sample and *stamp* should be enclosed for reply.

These publications are mailed to libraries and to individuals who may desire information on any of the special subjects named, free of charge, except that in each case applicants for the reports should forward the amount of *postage* needed, as indicated above, for mailing the bulletins desired, to the *State Geologist, Chapel Hill, N. C.*

JUN 29 '29

May 2 '34R

553 N873 no.44 54877

N.C. Geological and Economic
Survey: Highway work in N.C.

1914

DATE DUE

ISSUED TO

553 N873 no.44 54877

D03981173W



Duke University Libraries